

American FORESTS



NOVEMBER 1934

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MORE important than millions of telephones and millions of miles of wire is the fundamental policy of the Bell System. It is founded on a spirit of fair dealing with the public, with employees and with those who have invested their money in the business.

• • •

"The fact that the responsibility for such a large part of the entire telephone service of the country rests solely upon this Company and its Associated Companies also imposes on the management an unusual obligation to the public to see to it that the service shall at all times be adequate, dependable and satisfactory to the user. Obviously, the only sound policy that will meet these obligations is to continue to furnish the best possible telephone service at the lowest

cost consistent with financial safety. This policy is bound to succeed in the long run and there is no justification for acting otherwise than for the long run. . . .

"Earnings must be sufficient to assure the best possible telephone service at all times and to assure the continued financial integrity of the business. Earnings that are less than adequate must result in telephone service that is something less than the best possible. . . . The margin of safety in earnings is only a small percentage of the rate charged for service, but that we may carry out our ideals and aims it is essential that this margin be kept adequate. . . . This is fundamental in the policy of the management."

Quoted paragraphs from an address by Walter S. Gifford, president of the American Telephone and Telegraph Company, at Dallas, October 20, 1927.

BELL TELEPHONE SYSTEM





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Photograph by Mrs. George J. Openhym

"MONARCH WHITE PINE"



Woods

"The groves were God's first temples."

Forest Hymn.

*God give me woods, where I may lie,
Gazing through leaves up to a sky;
Where I may feel the sweet content
Of quiet hours with monarchs spent—*

*Monarchs whose heads are lifted high
To greet the God whom men deny;
Who draw from out the common earth
Strength for their task; and who give birth*

*To buds and blossoms, leafy boughs
Where nesting birds may safely rest;
And through whose branches gently flows
Life in which all that breathe are blest.*

*And if, perchance, my woods may be
Where mountains rise in majesty;
Where sunset glow and morning mist
Each leaf with gold and dew have kissed,*

*Then may I lift a grateful heart,
And pray that I may be a part,
With all the spheres, in harmonies
That rise in endless symphonies.*

NANNIE C. DINWIDDIE

In the Adirondacks, at
Keene, New York.

EXHIBITED—National Competition Conducted by
The American Forestry Association
for
Beautiful Photographs of Trees in America

AMERICAN FORESTS

Vol. 40

NOVEMBER, 1934

No. 11

A DANGEROUS PROPOSAL

By HENRY S. GRAVES

President, The American Forestry Association

IN THE September number of AMERICAN FORESTS I called attention to influences that are being exerted for the transfer of the Forest Service from the United States Department of Agriculture to the Department of the Interior; and I indicated that there would be further discussions of this issue in later numbers of the magazine. The transfer is by no means a new proposal. From time to time in previous years efforts have been made to bring about this change of jurisdiction over the forestry work of the Government. The repeated defeat of the proposal in the past may give the impression that the present efforts to make the change will also easily be defeated and that it is like crying wolf even to call attention to the matter.

It is true that the question is not officially in the open, but anyone who has spent much time in Washington the past summer and fall and has taken the trouble to make his own quiet investigations knows that in some official quarters at least the transfer is already accepted as certain. To what extent this attitude is father to the wish cannot, of course, be accurately gauged, but there can be no doubt that influences are at work behind the scenes to have the President effect the transfer by Proclamation shortly after the fall elections. This he has the power to do by virtue of the authority given him by the last Congress. The fact that in this instance the proposal, so far as the public is concerned, is an invisible issue within the governmental machinery and that the President has summary power to act makes the situation extremely precarious and emphasizes the need for vigorous protest on the part of many citizens and organizations that feel the change would be a serious mistake.

It is understood that the Secretary of the Interior is strongly in favor of the transfer, with perhaps some further shifts of bureaus, and that plans have already been formulated for the organization of the forestry work in that Department as soon as the Executive Order is signed. In any case, the matter has reached a stage of administrative consideration that makes it appropriate to place the situation before the public with an explanation of the reasons why The American Forestry Association has taken a position against the removal of the Forest Service from the Department of Agriculture. I have entitled this article "A Dangerous Proposal" because of my firm belief, based on many years of participation in the forestry movement, that such action would be detrimental to the sound progress of forestry and, too, to the advancement of the program of the Government for rural development, which requires an intimate integration of forestry with agriculture.

For years the various bureaus of the Department of Agriculture have been accumulating research and experience to

build a national policy and program of agriculture and land use. Extended application of protection, efficient woods management and better means of forest utilization on 127,000,000 acres of land owned by farmers, improved methods of windbreak and shelterbelt planting throughout the Great Plains region, and responsibility for administering more than 165,000,000 acres of National Forests in relation to their forest, grazing and recreation resources all have contributed to this plan. To cut off the member of the organization most responsible for this part of the program would seriously cripple the success of the land-use undertaking.

Forestry plays an important part in the present recovery enterprises of the Government, which are designed to aid in building up a more stable and prosperous economic and social development of our rural communities. Worn out and marginal lands in many cases are to be stocked with forest growth. The forest is looked to as one of the essential features in the programs of part-time farming, of subsistence homesteads, of control of soil erosion, of ameliorating the effect of drying winds in dry land regions, of recreation, and of conservation of wild life. In the work of planning for a better rural economy the soil resources must be considered together. There will always be an intermingling of tilled land, orchard, pasture, and forest, and changes from one of these uses to another, as conditions change from time to time. This is the very essence of orderly use of lands.

Forestry is an applied science so intimately related to agriculture as to be classed as one of its branches. Because both agriculture and forestry are concerned with the production of crops from the soil, because the technique of the management of forests and other soil crops have the same underlying bases, because the economic and social problems of each are so intimately interwoven, and because national planning must combine forestry with agriculture for a successful system of land use, the one should be kept closely in touch with the other.

At the foundation of forestry are soil science, plant science, meteorology, animal husbandry, zoology and land economics. These are represented in the Department of Agriculture by the bureaus of Chemistry and Soils, Agricultural Engineering, Plant Industry, Animal Husbandry, Weather Bureau, Biological Survey, Entomology and Plant Quarantine, Agricultural Economics and Forest Service. Their activities are all interwoven within the Department to establish a well-rounded foundation for the effective management of land.

In 1905 the policy was adopted of concentrating the for-

estry work of the Government in the Department of Agriculture. Already there existed in that Department a Bureau of Forestry to encourage the production of forests as a feature of soil conservation and land use. The national forest reserves, created out of the Public Domain, were then in the Department of the Interior. The problem of technical forestry was new to that Department, whose functions in land matters had for more than a century been devoted to disposal of the Public Domain and not to constructive land management. Their administration of the federal forests was a notable failure. From the day when they were transferred to the Department of Agriculture effective management of the public forests and the spread of forestry throughout the country advanced by leaps and bounds.

The Forest Service as now conceived is not merely concerned with the management of the National Forests. It is charged with the general advancement of forestry throughout the country. This involves extensive cooperation with the states and with private owners, and public education through demonstrations and extension teaching. Of great importance also is the responsibility for extending knowledge of forestry through research and experiment. In these undertakings the Forest Service, by the very character of its activities, must work in close cooperation with other scientific bureaus of the Department of Agriculture.

Recognizing that prosperous rural economy can be achieved only through effective land-use planning, the Forest Service is cooperating with the Extension Service of the Department of Agriculture to encourage production and efficient woods practices on 127,000,000 acres of land owned by farmers. This brings into the organization an army of county agricultural agents seeking to devote given areas of land to the uses for which they are best suited,—to tillage, to pasture, to forests, to recreation, or to any combination of these uses. It is of vital importance to effective land-use planning that these auspices be under a single direction,—in this case, the Department of Agriculture.

The proposed transfer is in line with proposals made during previous administrations to build up in the Department of the Interior a great Division of Conservation or possibly, an independent Department of Conservation. It overlooks the fact that the most important field of conservation is agriculture. The proponents of the transfer would separate from the Department of Agriculture the activities in forestry which are closely interrelated with agriculture in scientific background, in economic and social problems and objectives, and in national planning. Forestry would be weakened and so would the federal work in agriculture.

One reason advanced in favor of the transfer refers to the many common problems in the management of the National Parks and National Forests and the possibility that better coordination of policy and administration would be secured if the National Forests were transferred to the Interior Department where the Park Service now is located.

The National Forests comprise about 165 million acres; the National Parks about eight million acres. If a transfer is to be made on this basis, it should be the other way around.

Again, the Public Domain is in the Department of the Interior. There is now legislative authority for the administration of the grazing resources, which obviously should be coordinated with range management on the National Forests. Hence, it is said, the Forest Service, which has developed an effective system of grazing control, should be transferred to help in this problem on the Public Domain. If any transfer is made to meet public range problems, it should be to delegate the handling of grazing on the Public Domain to the Department of Agriculture. The problem of range management is one of soil conservation, production of forage plants, and animal husbandry,—all parts of agriculture.

Still again, the point is made that the Department of the Interior is traditionally the land department of the Government, is charged with handling the Public Domain, that it once had charge of the federal forests, and that it now administers the National Parks, Monuments, and Indian Forests. This may sound logical from the standpoint of blueprint organization, but it overlooks the basic objectives of the reservations. There are relationships to land-use problems outside the reservations and, most of all, one must remember that land administration is not an executive or engineering matter merely but involves the application of scientific knowledge along biological lines and skill in constructive land use, such as have been chiefly developed in the Department of Agriculture.

In the long run the public service of the forest reservations and of forestry depends on the extent to which biological and other basic sciences are used in planning and developing the technique of land management. The Department of the Interior is well equipped to handle the management of inorganic land resources, but it has never been equipped to handle problems of agricultural production, range management and forestry. These problems deal with the use of our surface land resources, all of which are of a renewable nature. To handle them in a way best to promote the collective welfare requires a background of soil science, land economics, animal husbandry, and zoology such as exist only within the Department of Agriculture. To build up a comparable system in another department would involve unwarranted duplication of effort.

The American Forestry Association has received strong testimony of the widespread opposition of foresters, of representatives of agriculture, and of others interested in constructive land-use, to the separation of the Forest Service from its scientific mooring in the Department of Agriculture. I hope that in the interests of effective coordination of forestry with agriculture and other land-use activities, those who hold these views will express themselves vigorously at this time, prior to any possible action by the Administration or by Congress.

REPORT OF THE ANNUAL MEETING

AS THIS ISSUE GOES TO PRESS, THE 59TH ANNUAL MEETING OF THE AMERICAN FORESTRY ASSOCIATION IS IN SESSION IN THE TENNESSEE VALLEY. A FULL REPORT OF THE MEETING WILL APPEAR IN THE DECEMBER ISSUE, AND A LIMITED NUMBER OF EXTRA COPIES WILL BE AVAILABLE. THOSE DESIRING THEM SHOULD ORDER EARLY.



THE HEALTH OF JOHN PEAVEY

AN AVERAGE BOY, BACK FROM A C.C.C. CAMP, PROVIDES HIS NEIGHBORS
AN EDUCATION ON THE YOUTH MOVEMENT IN AMERICA'S FORESTS

By
DAREL McCONKEY

JOHNN PEAVEY is back from C.C.C. camp. He looks healthy and bronzed, clear-eyed and grown-up, and alive. When I stop to think about John his aliveness is the most impressive thing about him.

It is hard to realize that this is the same Johnny who a year ago collected the trash in my backyard and put it out for the city truck. He took his fifty cents thereafter and went heavy-footed away. His eyes had a fugitive gleam then, and he was a white-skinned boy with a few freckles, beaten by the world before he had fairly made its acquaintance. His mother took in washings, his little brother served newspapers, and his sister who teaches was out of work. His shoe soles were tattered from knowing the pavements too well, and from wearing a trail across the floor of employment offices.

Johnny—the new Johnny, back from the mountains—stopped to talk for a moment. Yes, C.C.C. camp was great. He had learned a lot;

he liked it there, but the old home town looked good too; things were better in the family; he had gained seven pounds and a quarter, and was twenty-seven hundredths of an inch taller than when he left. "That's more than a quarter of an inch," he said, proudly. As he walked cheerily on I bethought myself that there goes a boy who has gained more than can be measured in linear and avoirdupois.

For he looks on the world as a challenger that can be wrestled to a fall with his two hardened young hands.

The errands I mustn't forget might then have entirely diverted me from John Peavey had not Dr. Medica happened along at the moment. "Amazing change in that boy," he remarked. "Crowning example of results attained by applying the principles of health."

He couldn't have appeared a likely subject when physically examined for admission to the Civilian Conservation Corps, the doctor said. He was undernourished, his fam-



John Peavey brought home with him the lessons he learned in the ranks of the C.C.C. in hygiene and health. This is a first aid dressing station in the woods and the victim of the accident has learned the first lesson in using an ax—not to cut yourself.



Gabriel Moulin

The first "E" in the Three C's is "Engineering"—each man an engineer—working together for the greatest safety of all—on jobs often difficult and dangerous. Here they are building a lookout on top of Mt. Bradley, eight thousand feet in the air.



Gabriel Moulin

The second "E" is "Education" and means for John Peavey, when he returns to civilian life, not only a good basis of preparation for a profession in many fields, but intensive training in first aid instruction as well as hygiene and health.



Gabriel Moulin

The third "E" stands for "Enforcement"—not so popular but an essential part of John Peavey's training in health—seeing that the necessary rest periods while on the job, to avoid over-fatigue, and the basic rules of hygiene are observed.

ily for two or three years had been at the bean and cereal level of existence, his posture was bad, his whole mental outlook was one of dejection. But his heart was sound, he had no evident physical defects, and his family situation was one of desperate want. So they took him.

The boy went into conditioning camp and began to eat. His food was plentiful, his menu varied, and he started to make up for a lack of necessary vitamins and mineral salts. No, he didn't gain as much as Frank Tyes, the boy from Whitmore, California, I had read about in the paper, who took on fifty pounds during six months in the C.C.C.; his gain was only average, but it was solid and healthy gain. His sleeping quarters contained the prescribed cubic feet of breathing air. His bunk tent, the mess tent, and the kitchen, were kept clean and sanitary. Sewage disposal to prevent contamination of water and food was a thing John had learned well, for in camp he helped to build it.

"And baths!" Johnny had exclaimed to the doctor. "I never realized what fun a bath could be till I had to fight two hundred and forty-nine other fellows every morning and evening for a place under the shower. You should have heard our outfit yelling as they jumped out of the bunks and made a break for the shower! It's one thing I've missed since I got back home, so I'm rigging up a shower attachment in the tub."

Dr. Medica leaned toward me impressively. "Remember," he said, "that John Peavey is just one of the boys. There are 360,000 of them in camps all over the country. John comes home and puts in a shower, and there are several hundreds of thousands of those boys who are not going to be satisfied with sanitary arrangements when they come back. They are bringing home and applying the lessons in hygiene and health that they learned out there."

Nor does this apply solely to health and sanitation, as I learned soon afterward from Johnny himself. It is equally true of first aid and personal safety.

S. M. Lauderdale, safety engineer for Emergency Conservation Work, had visited Johnny's camp, and the boy was filled with enthusiasm for his program. "He called it the three E's. We thought that was funny: three E's for the three C's. But it wasn't funny; it was real stuff. The first one was Engineering, or planning the job so nobody would get hurt while it was being done. The way it worked out—well, we're building a bridge, see, and every fellow is supposed to look out for anything that might cause an accident. 'Every man an engineer,' they said. And we were! I saved somebody's life once, I bet, when I showed the foreman a piece of timber that was hanging loose and might have fallen. We took it down."

The second E—Education—called forth equal enthusiasm from John Peavey. "We all had to take first aid instruction, and we all liked it, because—well, nobody wants to get hurt if he can help it, and every fellow would like to be so he could take care of people that drown, or get snake-bitten, or something. If anybody has a question to ask that he feels sort of dumb about, like what to do in case of mad dog bite, because he's afraid of dogs, he could write it on a slip of paper and put it in the query box, and have it taken out and answered without anybody being wiser about who wrote it. Then we had weekly safety meets, and divided into groups competing in knowledge and speed on various things, such as artificial respiration, and rescue from the water." It was a good thing, Johnny said, for he had heard about life saving by C.C.C. boys. One of them saved a camp buddy from drowning at Lamont, Iowa, and up on Palomar Mountain, California, a boy camper was saved from death when a C.C.C. man treated him for rattlesnake bite. And somewhere in Florida a girl with heart trouble had gone to a dance and fainted, and a C.C.C. boy had kept her alive by artificial respiration until a doctor arrived.

Enforcement—the third E—wasn't always so popular, but it

was justified in Johnny's mind. The fellows so often came in from work and went swimming while they were overheated, or too soon after eating a heavy meal. And the figures showed that of the twenty-nine drownings in camps all over the country during the first year of the C.C.C. there was not one in supervised pools.

One grows proud of Johnny's pride as he recites his knowledge of how to do things safely. He learned about poison ivy and poison sumac, how to treat people for sunstroke and heat exhaustion, he can build a scaffold that won't fall down, he knows the rules that govern the wearing of goggles, and of buttressing for excavations and trench construction, and has a working knowledge of electricity and how to handle it safely. "There was more to be learned," he said regretfully, "but I had my two six-month periods in the C.C.C. I had to step down to give some other fellow a break."

Dr. Medica in the first days after Johnny's return could not cease to marvel at the health possibilities that open out for boys of the C.C.C. "What more healthful working conditions could be found? Up in the mountains, where the air is crisp and clean and scented with the fragrance of pine?" he asked. "And have you seen that boy stripped to the waist, working around the house? He's brown as a chestnut. The air and the sun cleansed and built him. He was warmly clad in winter; in summer he stripped down to suit himself. On bad days he didn't work, and lost time was made up on Saturdays."

John Peavey wasn't just John Peavey to the doctor. He was 360,000 other boys, he was William James' dream of "A Moral Equivalent of War,"—he was the Youth of America, being remade while remaking the resources of the nation. He was one whose hands had built roads and levees, bridges and fire-breaks, erosion dams and shelter houses, one who had seared his knuckles while fighting the demon fire in its threat to consume the trees of the land.

So I fell to thinking on the collective John Peavey. The collective personality, I thought, should be susceptible to some sort of measurement. What is the true state of health in John Peavey, the Many? There must be statistics on the C.C.C., and I wrote to Washington to find out.

Mortality figures particularly interested me, and I worked up a table comparing certain phases of mortality in the C.C.C. with that in the nation. The statistics here given are the rate of deaths per 100,000 in the United States for the year 1931, and those for the C.C.C. are for the first calendar year of its existence, beginning April 17, 1933. They represent 488,000 different C.C.C. men enrolled during two six-month periods. Here is the way it worked out:

Deaths by	Rate per 100,000	
	U. S.	C.C.C.
Alcoholism	3.3	1.0
Apoplexy	79.1	1.0
Appendicitis	15.2	3.2
Auto accidents	25.2	22.9
External accidents	53.4	50.2
Homicide	9.3	1.6
Influenza	26.5	0.2
Malaria	2.1	0.2
Measles	3.0	0.6
Pneumonia	81.3	10.8
Suicide	16.8	0.8
Tuberculosis	60.7	0.8
All deaths (per 1,000)	11.1	1.2

The suicide figure I thought particularly interesting, for there were just four suicides in the entire C.C.C. during the first twelve months of its existence. That indicates an unusual hopefulness of mental outlook among C.C.C. men.

I showed the tabulation to Dr. Medica. He looked it over and shook his head. "It isn't a (Continuing on page 547)



Where could more healthful working conditions be found than here in the mountains, crisp air scented with the fragrant pines? These lads are hard at it, setting up their tents on the shore of Jackson Lake, in the shadow of the mighty Tetons.



The C.C.C. gave John Peavey full scope in developing his hobbies, and many of the boys turned to landscaping—trying out their talents in ornamental planting at their own camps. Some built rock gardens and others specialized in building garden furniture.



Between his very real work in the woods, the development of his hobbies and studies of things that interested him, the C.C.C. has helped John Peavey to a new life—mentally as well as physically.

RECEDING GLACIERS

By C. FRANK BROCKMAN

Photographs by the National Park Service

MOUNT Rainier has upon its broad flanks the largest glacial system in the continental United States, exclusive of Alaska. Twenty-eight glaciers comprise this great system, forming an ice mantle nearly fifty square miles in area and covering thirteen per cent of the total area of Mount Rainier National Park, in the State of Washington.

This large ice mass is gradually melting away. Recessional measurements taken annually on October 1 since 1918, serve as evidence of this fact. It is impractical to keep annual data on all the glaciers of Mount Rainier, so the Nisqually Glacier, third largest on the mountain, and most easily accessible of the group, was first selected. This

glacier has an added advantage in that historical records made by early climbers and pioneers have given some indication of the position of the ice long before more accurate records were undertaken. Consequently, in addition to the data since 1918, investigators have a fairly good idea of Nisqually's backward movements since 1857, when Lieutenant Kautz attempted to reach the crest of Rainier. His was the first recorded effort to climb the mountain. Though unsuccessful, Kautz contributed some valuable information to science by noting the position of the snout of the Nisqually in his diary.

Since 1918 the greatest recession was recorded on Oc-

The great glaciers which comprise the ice mantle worn by Mount Rainier are gradually melting away. Recessional measurements made on the Emmons Glacier, pictured here and the largest in continental United States, exclusive of Alaska—show a difference of 124 feet in one year, from October, 1930, to October, 1931. It is nearly six miles long and one and a half miles wide at its widest point.





The Nisqually Glacier is on the opposite side of Mount Rainier from the Emmons and recession data on this glacier, accurately tabulated since 1918, shows that it is melting back at an average yearly rate of seventy-two feet. The photograph was taken at the edge of the Nisqually, showing the South side of Mount Rainier.

tober 1, 1930. It was evident at that time that the glacier had receded 118 feet in the previous twelve months period. An annual recession of forty-three feet was recorded on October 1, 1927. The tabulation of the annual recession of this glacier, as noted at the close of this article, gives evidence that the Nisqually is receding at an annual average rate, since 1918, of about seventy-two feet. The glacier is nearly five miles long, arising from the neve field at the mountain's summit.

A comparison of the length of the Nisqually Glacier with the average annual recession may result in attempts to ascertain the probable life of Mount Rainier's ice mantle. Such a prediction would be in vain, however, as recession measurements tell but a portion of the story. For instance, in the year 1921 the snout of the ice was crowded between the walls of a narrow canyon. A recession of 106 feet was recorded in that year, which merely gives an idea of the relative position of the ice front. That less ice actually melted, as indicated by this large recession figure, than the average annual expectancy can easily be attributed to the position of the snout between narrow canyon walls at that time. As the ice recedes it is quite likely that, as the snout reaches a point where the glacier is quite wide and high enough on the mountain to take advantage of the cooler temperature of the higher altitudes, the recession will be retarded. So there will be glaciers here as long as most people will be interested in them.

A good highway runs to within a half mile of the Nisqually's snout, from which the waters of the stream of the same name issue forth. An excellent, easy trail affords every park visitor a close-up acquaintance with a glacier. This highway has the reputation of being the first road constructed to a glacier within the United States. The ice was formerly much closer to

the road than at present. Until the fall of 1930 no experiments as to the rate of flow or downward movement of the Nisqually had been made since 1906, when Professor LeConte, of the University of California, determined that the ice, on hot days, reached a maximum downward move-

ment of sixteen inches in certain favored situations. Professor LeConte made no experiments during the winter but it was assumed that the movement was reduced at that time. In 1930 the United States Geological Survey, the engineering department of the City of Tacoma, and government officials in Mount Rainier National Park, undertook a cooperative

survey to determine facts pertaining to the present downward movement. Observations were made once or twice a year in 1930, 1931 and 1932. It was found that during the fall, winter and spring months the downward flow of the Nisqually reached an average maximum of four or five inches daily.

In 1930 the recession measurements of the Nisqually were deemed successful enough to undertake similar experiments on several of the other glaciers. Points were set near the existing snout of the Emmons Glacier, which being nearly six miles in length, is the largest in continental United States, exclusive of Alaska. In October, 1931, it was found that during the previous year the ice, at the point from which the river issues beneath, had receded 142 feet. This served as an example, however, of the conflicting impressions given by such recession measurements. The ice had melted out in a narrow semi-circle so that the point from which the river emerged, which serves as the

arbitrary point from which recession measurements have been made on "The Mountain," was quite a bit farther back than the actual ice front.

The Emmons Glacier is on the (Continuing on page 550)



An interesting shot of the terminus of the Nisqually Glacier in 1892. The rocks marked with a cross are located within one hundred feet of the Nisqually Bridge. In 1920 the distance from the Bridge to the nearest ice was 1,555 feet.

ANNUAL GLACIER RECESSIONS, MOUNT RAINIER NATIONAL PARK

The Nisqually Glacier

1857-1885	760 feet	1924-1925	73 feet
1885-1892	140 feet	1925-1926	86 feet
1892-1918	1310 feet	1926-1927	43 feet
1918-1919	59 feet	1927-1928	89 feet
1919-1920	46 feet	1928-1929	52 feet
1920-1921	106 feet	1929-1930	118 feet
1921-1922	67 feet	1930-1931	49 feet
1922-1923	44 feet	1931-1932	50 feet
1923-1924	83 feet	1932-1933	44 feet

The Emmons Glacier

1930—Point, backsite and line of site established.	
1930-1931	142 feet
1931-1932	2.5 feet
1932-1933	48.5 feet

The Carbon Glacier

1931—Marker placed and destroyed.	
1932—Marker replaced.	
1932-1933	12 feet

The South Tahoma Glacier

1931—Marker established.	
1931-1932	37 feet
1932-1933	13 feet



Prominent American timberland owners and Lumber Code officials pause in the old city of Dessau in the course of their excursion to study private forestry in Germany and Czechoslovakia. The author is second from the right.

A Forestry Excursion into Central Europe

By WILSON COMPTON

THANKS to the Oberlaender Trust of the Carl Schurz Memorial Foundation, I had an opportunity in July and August to examine the results of industrial forest management in Germany and Czechoslovakia. This opportunity was prompted by the fact that the N.R.A. code of the Lumber and Timber Products Industries requires constructive changes in the prevailing use of in-

dustrial forest lands; and encourages, and—if promised public cooperation is provided—paves the way for the ultimate introduction of permanent forest management on private lands in the United States. It was, therefore, a highly practical service which the Trust rendered to American forest industry, as well as to its mission of international amity, when it undertook to finance, in the name



It would be difficult to find in Central Europe an acre of cutover land that is not immediately reforested. Here is a typical plantation of Scotch-pine, the staple tree of North Germany

of Carl Schurz, great German-American and first forest-minded statesman of the United States, an excursion of American lumbermen and advisers to the private forests of Germany and Central Europe. It was a bold but constructive thing to take the men of dashing forest exploitation to witness the most careful and meticulous, and, I might say, with few exceptions, the most profitable forest management in the world.

The men who made this expedition from the private forests or forest industry organizations of America to the carefully groomed forests of Central Europe were: W. R. Brown, Assistant Treasurer Brown Company, Berlin, New Hampshire; P. R. Camp, Vice-President and General Manager Camp Manufacturing Company, Franklin, Virginia; Wilson Compton, Secretary-Manager National Lumber Manufacturers Association, Washington, D. C.; George F. Cornwall, Editor *The Timberman*, Portland, Oregon; J. J. Farrell, President Farrell Lumber Company, Poland, New York; Robert B. Goodman, Secretary Goodman Lumber Company, Marinette, Wisconsin; C. H. Guise, Professor of Forest Management, Cornell University, Ithaca, New York; L. K. Pomeroy, President Ozark Badger Lumber Company, Wilmar, Arkansas; John Raine, President Meadow River Lumber Company, Rainelle, West Virginia; Lee Robinson, President Mobile River Saw Mill Company, Mount Vernon, Alabama; Theodore S. Walker, Resident Manager Red River Lumber Company, Westwood, California; John W. Watzek, Jr., Vice-President Crossett Watzek Gates, Chicago, Illinois. Ward Shepard, who had previously made a study of forest policy in Central Europe under the Oberlaender Trust, joined the party during its last week.

Arrived in Germany we were greeted by internationally noted Forester Dr. Franz Heske, Director of the famous forestry school at Tharandt, near Dresden, who thereafter with the aid of three younger foresters under his tutelage, delightfully and instructively planned and managed our tours by coach and rail from Berlin through eastern and southeastern Germany and over into Czechoslovakia, covering a period of three weeks.

At a later time, but as soon as possible, these forest excursionists intend to record their observations and to develop therefrom recommendations to Government, forest owners and the Lumber Code Authority bearing on the "forest code" of the Lumber Code, under which the lumber in-

dustries of America began on June 1st to work toward sustained production of timber. In view of that program all I shall endeavor to do here is to set down some notes and comments regarding our tour—not in the nature of a diary but more as a selection of the significant things which stand out as I view the trip in retrospect.

Our first day in the field, following one of formal reception by the American Ambassador, Prussian and Reich officials, was devoted to a trip to Hohenlibbichow, near

Berlin, to the home of Baron von Keudell, Reichs minister of Forestry and President of the German Forest Association. The Baron made a hurried trip to receive us, from Neudeck, whence he had again immediately to return to attend the funeral of the late President von Hindenburg. He has an estate of 6,000 acres, 4,000 of which are in forest, mostly Scotch pine. This forest has been managed intensively since 1820. The Baron gave us a short talk concerning the properties. There is a nearby market for all the products of the forest, including thinnings, leaves, faggots, etc. There are various combinations of hard and soft woods on a rather poor soil, where the rainfall is only 20", although this would not be considered an arid climate—the atmosphere being, in fact, rather moist. I was impressed by the statement that the net returns from this forest are from 20 to 25 per cent of the gross revenues. More impressive to me was the evidence of first concern for continuing the employments and the sources of livelihood for the scores of families which for generations had come to be dependent on this soil.

The following day we saw the small forest property of Baron von Kalitsch at Barenthoren, near Dessau, the famous so-called "Dauerwald." Although small, this forest is noted because it was here that a certain system of technical

management was begun 40 years ago and the results show strikingly what can be accomplished, with careful management, in increasing timber yields on poor soils.

On August 8 we saw our first great German forest—that of Count Schaffgotsch in southeastern Silesia, which has been in his family for 800 years, with forest records reaching as far back as 1593; 12,000 acres were recently sold but the remaining forest is 62,000 acres, of which 57,000 are in productive timber land, the rest being devoted to grazing. This is the largest private "forest" in Germany, and that reminds me that the word "forest" is used in



Natural regeneration is more and more sought after in Germany, as is shown by the thinning out of this mature stand of spruce to permit favorable atmospheric and light conditions for germination of seed.

Germany as it was formerly in England—to apply to an area which may cover open as well as forested land. In this forest is the highest peak in middle Germany, and the forest area extends from an altitude of 1200 feet up to 4100 feet. It is what, to use an over-worked word, an American would call a “regimented” forest, mostly of spruce. There are five districts of about 12,000 acres each under a university-trained forest officer, and under each of these officers are perhaps ten forest guards. The principal method of reforestation is planting, as natural regeneration is not dependable on account of the scarcity of seed production and the rugged, ragged and rocky mountain slopes. The young trees are spaced 5 to 6 feet apart in order to bring about stronger growth and because there is here no profitable market for the small thinnings that would follow closer planting. Parenthetically, I may say that I was rather surprised to find that natural regeneration is rather common forest practice in Germany. A sustained annual yield of about 25,000,000 board feet is attained in the Schaffgotsch forest on 57,000 acres, of which 70 per cent is lumber, 10 per cent pulp and 20 per cent pulp and fire-wood.

40 to 50,000 feet an acre, the annual growth being calculated at about 600 board feet an acre. Such a stand of spruce and such an annual growth were amazing to us.

The estate aims to make a net profit of 30 marks a hec-



In the great forest estate of Prince Schwarzenberg, in Western Czechoslovakia, which has been under sustained yield management for generations. So great is the pride of this family in its forest that it has built up one of the most complete and interesting forest museums in the world.



The American party visiting the forest belonging to Baron Vietinghoff-Reisch, near Bautzen in Saxony. This forest shows that careful intensive management will produce profitable forests even on the poorest of sandy soils.

Of the fire-wood 75 per cent comes from final felling and windfalls and 20 per cent from thinnings. The growing stock amounts to about a billion board feet and the average mature stand, counting all trees above 3" in diameter, is

tare, which is equivalent to about 12 marks, or \$3, an acre. I imagine that there are thousands of owners of cut-over forests in America who would be well pleased if they could

make an annual profit from tree growing of \$3 an acre; but I suspect that they would not be able to get forest workers for as little as 5 marks or about \$1.15 a day. The entire labor cost of tree raising at Krümburle is only 250,000 marks a year. As to price for saw logs, we were informed that logs from 15 to 19 centimeters in diameter, that is, about 6 to 7", brought 10 marks per cubic meter, (about \$5 a thousand feet board measure) and logs between 45 and 49 centimeters sold for 18 marks per cubic meter (about \$8.50 a M feet),—rather better prices than are obtained in America. Pulpwood prices, we were told, were 11 marks per cubic meter, and the run of the fuel wood brought 7 marks. Contrast this thrifty utilization with our customary disregard of forest material not suitable for lumber, remembering, however, that to save what cannot be used is not thrift.

What is thrift in Germany may after all be improvidence in America. These long rows of soldier-like trees, these raked forest floors, these neatly (Continuing on page 548)



COTTONTAIL

By
CHARLES NEWTON ELLIOTT

ONE of the most timid, most inoffensive and most persecuted creatures of the animal kingdom in America is the cottontail. Furred and feathered hunters, who live by tooth and beak and claw, prey upon him. Man, with his hound and beagle packs, drives him from the swamps and the thickets. Day and night, winter and summer, there is no respite. His vigilance must be eternal. Relaxation is death.

Yet somehow, I believe our lowly rabbit will survive. I am no mammalogist and certainly not an animal psychologist, but recently I have observed incidents that make me believe the cottontail is gifted with something more effective than speed and sheer luck. I am convinced that unrelenting persecution has developed his powers to reason and with them, a subtle sense of humor.

I no longer hunt rabbits with a gun. Once I did, but now I find myself anxious to see how they will think themselves out of tight corners. Several incidents, insignificant though they were, taught me that I could bring back from the wilderness experiences which are far more pleasing than the mere cold body of a cottontail rabbit. Since I have practiced that theory, I have had innumerable adventures which gave me more thrills and far more enjoyment than I ever found in the sport of mere killing.

Only a few days ago I was lost in a wide river swamp of the south. Being lost is no novel experience and I was threading my way back through a maze of sloughs and narrow cane ridges, when I heard the excited voice of a hound pack. I changed my course so I could cross the swamp just below the dogs, for I thought they might be trailing a deer, a fox or a cat.

I slipped silently from one cane thicket to another, hoping to get a glimpse of the hunted creature, until I stood in an open spot in the middle of a cane ridge. Just beyond I could hear human voices. Immediately in front of me,

several big red hounds nosed in the brush and leaves. Suddenly one of the whines exploded into a sharp yelp and a brown, furry ball came bouncing out of the canes. The entire pack closed in pursuit.

I stood still and the rabbit passed near me—so near he had to swerve to keep from hitting my legs. Every dog in the pack crowded by, one of them bumping against me in his hurry to overtake the fleet brown ball. Just beyond, the cottontail veered in his course. Turning sharply, he plunged into a wall of thick, heavy canes. The hounds were not able to follow. They became confused and again separated. The rabbit circled and as far as I could ascertain, came back to the original bed from which he had been jumped.

Just in front of where I stood was the enormous trunk of a tree which had recently crashed to earth. Half way up the trunk, sometime in the years past, a limb had been torn from the tree. While nature healed, striving to cover the wound, air and water and fungi, the bitter enemies of living wood when they work together, had cut a hollow deep into the body of the tree. I was mentally commenting on this natural phenomena when one of the hounds struck again. This time, instead of running directly toward me, the rabbit tumbled to the fallen tree trunk and squeezed under a crooked section of the bole raised several inches above the ground. None of the hounds thought to jump over the log. They all bayed on the other side, evidently thinking they had at last cornered this wary cottontail.

With these few moments of leisure, the rabbit showed a rare bit of intelligence. He hopped slowly down the side of the log, circled out into the swamp and came back to the fallen trunk at a point just opposite the cavity, which lay directly on top of the bole. Without hesitation he jumped several feet to the top of the tree trunk and squeezed his body into the hole. I remained where I was

for half an hour while the dogs hunted him. Finally the two hunters, across the cane brake from me, impatient because of the long wait, called the pack and went off to hunt a more accommodating rabbit.

The *leporidae*, or Rabbit Family, is divided into two groups, rabbits and hares. Members of these two groups are often confused. For instance, the Snowshoe and Jack Rabbits are really hares and the Swamp and Pigmy Hares are true rabbits. Hares are easily distinguished from rabbits. They are usually larger, being both long-eared and long-legged. The hind legs are, as a rule, much longer than the fore legs. They make their homes in open nests, or "forms." The young are born with their eyes open and with a well developed coat of hair.

The rabbit group is one with smaller individuals. They are shorter of legs and their ears are not so immense. Rabbits usually make their homes in old logs or in burrows in the ground. Many of them line their nests with fur plucked from the body. The young are born naked and with closed eyes.

The cottontail belongs to the rabbit group. He is scattered far and wide over north and middle America. His favorite food during the growing season is twigs, buds, leaves, berries and the inner bark of trees. When he can crawl through a hole in the garden fence, he will not hesi-

tate to make a meal of the finest lettuce or cabbage. In the more northern sections of the country, the cottontail becomes lean and thin during the winter, but in the south he remains fat all during the year.

Several years ago I was hunting with an assorted group of men and boys, black and white, and an assorted pack of dogs . . . fice, terriers, hounds, beagles and bird dogs. The terrain where we hunted was broken by hills and valleys, by deep ravines and small creeks, and by cultivation and forested slopes. The dogs had jumped a rabbit and for the greater part of an hour had run him up and down a small creek, driving him from one covert to another. Finally we went down the hill ourselves to look for him and to tramp the valley a number of times without success.

Presently we stopped by a wide place in the creek. One of the dogs was standing on a rock just below us, drinking from a pool. The others were scattered up and down the ravine, sniffing at grass clumps and brush heaps. One of the boys clutched my arm.

"Look," he whispered. "Look right in front of you."

The rabbit was there, flattened against the ground which was almost the same color as his body. I stared in amazement. Any one of the four men in the group could have reached out and touched him with a foot. One of the negroes made a sudden lurch for his gun, which he had



THE HARE HUNT

Engraved by J. Godby & H. Merke, after Samuel Howitt, and published September 1, 1807, by Edward Orme, Printseller to the King, Bond Street, corner of Brook Street, London. From "Orme's Collection of British Field Sports" in the British Museum.

leaned against a tree. Startled by this sudden movement, the rabbit jumped. Down he went, into the creek, landing squarely on the head of the hound which drank from the pool. Both dog and rabbit floundered in the water. The cottontail recovered first and gaining his feet, dashed down the stream bed. No one even shot at him. We were all too startled by the sudden drama. By the time the dogs had again been put on his trail, he had probably flattened himself in some other brushy copse. We could not find him.

A great many forest fires in the south are caused by rabbit hunters. One of the most amazing sights I have ever witnessed was a group of fifty or more negro tenants hunting rabbits in a small pond head. They had no guns and very few of them were rich enough to own dogs. Their weapons were sticks and stones gathered from a nearby field.

One of the older negroes set fire to the swamp near the creek. It burned slowly across the head of the pond, pushing the rabbits into one corner of the swamp. Now and then one of the cottontails, frightened by the smoke and crackling flames, burst from cover into the cultivated field where the tenants had gathered . . . men, women and children. One rabbit ran over a hundred feet from the edge of the swamp. The hunters descended upon him, yelling and hurling their weapons. Many of the bodies were pounded into unrecognizable shapes.

When forest fires occur, hawks and sometimes an eagle may be seen, swinging in silent circles above, watching for birds and rabbits flushed by the fire. Not long ago on a southern forest fire, I saw three red-tail hawks circling, watching for furred and feathered prey. They remained above the boundary of the fire, but climbed higher and higher as I approached. Presently one of the fire fighters jumped a big swamp rabbit. He dodged and circled up through the forest and ran out of sight toward the northern boundary of the fire line. I continued to walk beyond the edge of the flames, directing the activities of the workers, and at the same time watching for any stray sparks which might be blown across the line.

Suddenly I heard one of the red tails utter a wild, excited scream. When I glanced upward the big bird was directly over the northern boundary of the fire and shooting downward like a winged comet. I guessed that he had seen the rabbit. He floated out of his plunge and plunged again, this time farther away. I tried to gain a high spot where I might watch the show, but was unable to locate any stump or rocky promontory which would enable me to see beyond the line of trees. The hawk did not scream again, but dropped swiftly from sight.

I hurried as quickly as possible to the edge of the field, but when I arrived, out of breath, neither hawk nor rabbit could be seen. I was about to turn again into the woods when I saw the hawk spiral up the winding, aerial stairway . . . with empty claws. I will never know how that rabbit escaped, but I saw him later, hopping down the edge of the burned area, back to where the fire fighters had first jumped him.

One of the most interesting incidents I have ever witnessed in the woods concerned a rabbit. There were no guns or dogs or huntsmen. The rabbit simply outwitted the keenest of all the predatory foes with which he had to contend. And I am convinced that he did it through a process of reasoning.

I was fishing for trout on the headwaters of the Toccoa River, near the Cherokee Game Refuge in Georgia. I had left camp a little too early and arrived at my destination in the inky blackness which precedes dawn.

The time was late summer and the morning air was quite cold. I had no intention of wading in the icy river before the fish would begin to bite, so I sat down on an old half-rotted log to wait until the gray light began to filter through the trees. Dawn came quickly and I was about to knock out my pipe ashes and wade into the stream when I noticed a movement at the edge of the little clearing in which the log lay. A rabbit hopped into the open. Suddenly he saw a wisp of smoke curl upward from my pipe and he instantly "froze" into the ground.

How long we sat there, watching each other stonily, I do not know. Finally the rabbit moved. Hopping slowly, he came directly toward me, then on past the log on which I sat and to the water's edge. Slipping in, he swam across the stream. I watched him climb out on the bank and continue his unhurried way

into the shelter of the woods on the other side. I was so astonished that I continued to sit on the log, wondering what motive the rabbit could have in deliberately swimming the channel of the creek on such a cold morning.

Presently I caught another movement in the woods from which the cottontail had emerged a few minutes before. I had to look closely before I could pick out the outline of a fox, standing among the trees, watching me. He stood there a few moments, then turned and merged into the denser shadows of the forest behind him.

I shall always believe that that rabbit, in hopping so closely to me, deliberately chose between an uncertain chance of death with me and a certain death in the shadows of the woods out of which he had come.



THE FORESTER

I take you very gently, little seed,
And very gently slip you in the sod;
Small though you be and motionless,
You shall awaken at the voice of God.

And when at last you muse among the stars,
Grown high above the bosom of the
Earth,

Oh, think of me, green temple of the
wind—

The long since vanished hand that gave
you birth.

*Blanchard Kennedy,
Company 474, C.C.C.,
Tyro, Mississippi.*



EDITORIAL

The American Elm--Now or Never

THE critical situation of America's elms warrants widespread public protest. Unless the recently imported Dutch elm disease is more swiftly brought under control, the elm tree will disappear from every countryside and from every city, town and village of the United States. For four years the disease has been incipient in this country. Efforts, now shown inadequate, have been made to wipe it out. The bold and alarming fact today is that the disease is rapidly getting out of hand, for the stupid reason that last winter the Department of Agriculture of the Federal Government failed to insist upon adequate money to stamp it out in its incipient stages.

Upwards of fifty thousand trees harboring the disease or serving as infection carriers in the zone centering around New York must be removed before next spring; otherwise the American elm is doomed throughout the United States because the disease will have gained such headway that control measures will be futile. But funds are lacking for the necessary removal. Yet the Department of Agriculture, admitting the emergency, accepts the situation without demanding emergency funds. A half a million dollars is immediately needed and another half million next spring. For want of a million dollars, the American elm may be sacrificed on the altar of chance and official complacency.

Loss of America's elms will be a national tragedy. Saving them is a national responsibility. States and individuals everywhere stand ready to join in the fight, but dominant federal leadership is needed and that quickly. If the federal agency charged with controlling serious outbreaks of plant diseases fails to stop the Dutch elm disease, while stopping is possible at reasonable cost, public confidence in its fitness to cope with new plant diseases, much less established ones, will be long shaken, for dead elms everywhere will write the failure deep in the hearts and homes and communities of millions of citizens. Wholly apart from the esthetic and historical value of the elm, its wholesale killing by the disease will lay a heavy financial burden upon cities and towns and home owners in that removal of the disease-killed trees from streets and yards will cost many millions of dollars—far more than stopping the disease now.

From every viewpoint, it will be a sad commentary upon the present Administration if, with a tree army of 350,000 men and billions of dollars of emergency funds, history writes that it permitted the nation's most beloved tree to go the way of the chestnut. Citizens everywhere should protest the inexcusable breakdown in control work. Saving the elm has become a case of now or never.

The Prairie Venture

COMPTROLLER McCARL'S ruling limiting the drought relief funds available for initiation of the prairie shelterbelt to one million dollars will in the long run, we believe, prove to be in the best interests of the undertaking and the public. The project as first announced contemplated an expenditure the first year of fifteen million dollars with sixty million dollars additional during the nine years to follow. It is beyond reason to believe that under the circumstances so large an amount of money as contemplated could have been wisely or economically used the first year. Waste of funds and grievous mistakes would have been humanly unavoidable and through reversion of public sentiment they might well have brought about speedy defeat of the underlying merits of the undertaking.

This view is based on the fact that the project although set up on paper with dramatic and idealistic nicety is lacking in adequate study and knowledge of many problems involved and a well worked out ground plan of procedure. The extravaganza of publicity with which the proposal was announced rather than winning public acceptance of the large expenditures contemplated has had the result of placing the whole undertaking in the spotlight of critical public appraisal. This appraisal has served to strip it of some of

its fanciful adornments and to bring it more and more in the clear as a problem of hard reality in a region of hard climate. Freed of the necessity for extravagant haste, shorn of its over dramatization and deflated of some of its extravagant claims, the project now should be in better position to develop along lines of critical exploration and practical planning.

There is real merit in the planting of tree shelterbelts in the prairie states provided it is done with practical intelligence. The experience of the past thirty years, however, has shown that their establishment and maintenance are usually costly and their influence is extremely local. Good social economy dictates, we believe, that these plantings be made not only on ground where growth conditions give reasonable assurance of success but where benefits will be definite and commensurate with costs. The grandiose conception of the prairies gridironed with continuous strips of trees a thousand miles in length ignores too many laws of nature and of political economy. Before committing the public to such a vast and problematical investment, the Government should be better informed as to the conditions and problems concerned, present and future expenditures involved and actual benefits to be derived from the expenditures.

BRIDGES OF THE WOODMONT

BY ARCHIBALD RUTLEDGE

The Woodmont Club is one of the most remarkable hunting preserves in the world—its territory stretching over the rolling hills, rugged mountains, deep glens and beautiful waterways of Western Maryland.

A TRIBUTE TO THE MAN WHO HAS DONE MORE FOR THE WILD TURKEY THAN ANY MAN LIVING



Bridges calling up the wild turkey.

years secretary of the renowned Woodmont Club of Maryland. Some account of his remarkable career should be of interest to all hunters, to all conservationists, to all those who are genuinely interested in the propagation and the preservation of wild game; for, to mention only one of his achievements, here is a man who has done more for the wild turkey than any one else now living or, as far as I know, who ever has lived. Another reason why we should know more about Bridges is the fact that he is one of the shyest and most modest of men; and if his extraordinary story is not told by some one other than himself it would never be told. Accomplishment is always ap-

WHILE we have had many accounts of the famous sportsmen of the past, whose prowess is a part of our national heritage, it has always seemed to me that we have neglected—perhaps through a lack of perspective—the truly notable woodsmen of our own time. Among these is Henry P. Bridges, for twenty-seven

preciated more when it manifests an unwillingness to display itself.

The Woodmont Club, where Bridges justly reigns supreme, is one of the most remarkable hunting preserves in the world. Founded in 1870 by Admiral Robley D. Evans ("Fighting Bob" of Navy fame), it has continued to this day a model of what a private shooting club should be. The entire preserve proper contains upward of 8,000 acres, 5,000 acres of which are under a vermin-proof nine-foot wire. The fence itself is fourteen miles long, enclosing a virgin territory of rolling hills, rugged mountains, deep glens, and sunny old pasture uplands. Its southwestern boundary is the Potomac River.

The erection of the fence enclosing the preserve proper was a heroic, costly, yet essential undertaking. In its construction twenty-five car-

loads of wire were used; four thousand twelve-foot locust posts were employed; and the operation required two years of labor. Within the preserve there are twenty miles of trails, twenty-five miles of good roads, and thirty game fields. The spacious clubhouse itself is not within the preserve, but is on club land about a mile away, occupying a noble eminence that commands a superb view of the rolling reaches of the Potomac, and of the West Virginia mountains beyond.

While certain parts of the preserve used to be orchards and culti-



A flock of old wild gobblers in the five thousand acre preserve of the Club.

vated fields, these have for the most part now reverted to nature; by far the larger area is virgin forest, a thing rare to find now in any part of the East. Here are great white oaks, hickories, pines, hemlocks, maples, butternuts; there are thickets of sugar pines and mountain laurels; and the lower growths are festooned by greenbriars and wild grapes. Seedlings of the latter have been planted everywhere to supply natural food for the game. Here too are the sumac, teaberry, shadblow, wild roses, and other flowering shrubs

wild turkeys and the ringneck pheasants. These game fields are from three to twelve acres in extent, and their sites have been chosen with a view to their strategic position; they are invitingly remote, and are surrounded by the wild forest. Lying beside one of the rail fences enclosing a game field, I have counted a flock of seventy wild turkeys feeding in a millet-patch.

Instead of designating the game fields merely by number, the manager of the Club has, with taste and judgment, given



The Southwestern boundary of the Club is the Potomac River. This beautiful scene on the property is in early spring when the blooming dogwood and shadblow are like late drifts of snow along the banks of the river.

and vines that bear edible berries. Walking through the preserve, one has the impression that he is going through a primeval wilderness; and it is to be remembered that a primeval wilderness, kept by nature, is likely to show a definite orderliness and culture that is in happy contrast to the chaos of a forest in which man has operated—for example, with some lumbering enterprise.

Here and there in the immense preserve are the game fields, surrounded by high fences to keep out the deer. These are cultivated areas in which corn, millet, buckwheat, and other grains are planted but not harvested save by the

to each the name of some member or some famous guest; thus we have the Cleveland Field, the Wheelwright Field, the Olivia Field, the DuPont Field. And speaking of eminent visitors, the Woodmont has entertained five Presidents: Arthur, Harrison, Garfield, Cleveland and Hoover.

Now, it might be supposed that the Woodmont Club is a very exclusive organization. Being a private enterprise, it must be exclusive in one sense; but in another it is truly American in a very democratic custom that prevails there. Members are permitted to bring guests; and frequently at the Club I have met more visitors than members. Thus

many a good sportsman is privileged to enjoy, through the courtesy of a friend, sport as fast and as carefree as can, I think, be found anywhere in America.

The actual membership of the Club is limited to sixty; and no one who lives closer than one hundred miles is permitted to join, for reasons that explain themselves. During a visit a member or a guest is permitted to kill two wild turkeys; two deer is the season's limit for a member. Occasionally a member will permit a guest to kill his deer. Within the great preserve there are upward of a thousand deer and four thousand wild turkeys. The deer are mostly of Michigan stock, and the full grown stags often go over two hundred and fifty pounds. Not all of the acreage under wire is open to hunting. In the heart of the preserve is an inner sanctuary, 500 acres fenced off, and this is inviolate territory.

This refuge is soon recognized by the turkeys and the pheasants, many of which pass the entire hunting season within its protection. The deer have been in the preserve for twenty-five years; and, despite the yearly kill, their natural increase has served to develop their number, so that every year a good many are sold. Recently Cuba purchased both bucks and does in an attempt to improve the stock on the

island. The deer at the Club are supplied with rocksalt, which is fastened to shelters against trees; sometimes in the dead of winter they will be fed apples. But for the most part the natural foods of the forest supply all their needs. I have found, after long observation, that one of their favorite autumn and winter foods is the acorn; and the thousands of splendid oaks in the preserve insure an abundant supply of this standard ration. Deer which are sold and must be shipped are baited into a small wooden pen, where they are trapped. Kept there several days until their nervous excitement has abated, they are loosed from the pen into crates—one deer to a crate. From the wildness of the preserve to the wildness of their new home they are never touched by human hands.

While Bridges of the Woodmont takes an active interest in the deer and in the other game of the Club, it is to the wild

turkey that he has really devoted his long years of affectionate and painstaking care. You know, when we say "wild turkey" these days, we may be speaking of a bird that has more barnyard than wilderness in him. Wherever wild turkeys are found on free range, tame birds are likely to get with them in the mating season; the result of such a union may be a very fine bird and a very wild one too; but the strain is not pure. Lately I asked Bridges to describe the true wild turkey as he conceived it should be—and he said: "Long, slender body; blue head; long neck; chestnut-brown plumage; slightly barred wings (not gray); pink legs, that take on a darker shade with age. Some birds have a coppery bronze color; some have more iridescence or sheen." As to weight, Bridges says the true wild bird will

rarely go over eighteen pounds. The largest wild gobbler I ever weighed was twenty-two and one-half pounds; but I never saw another like him. Concerning the foes of the wild turkey in his native state, and to some degree even at the Woodmont Club, Bridges is of the opinion that wildcats, foxes, horned owls, raccoons, weasels, opossums, and skunks are the worst. The last four are a menace chiefly to the eggs and the young. I

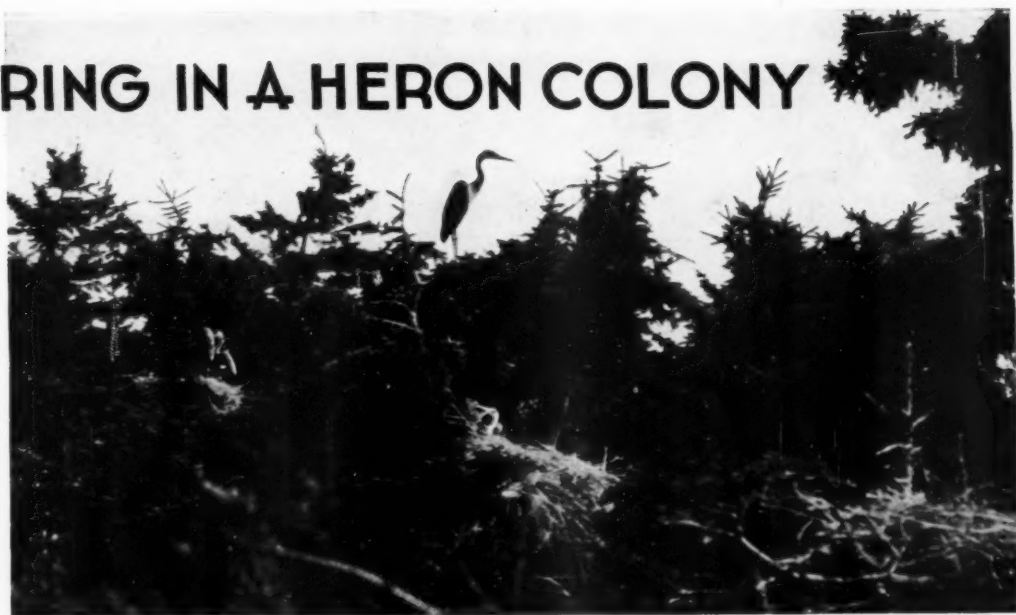
asked the manager about the danger of the turkeys escaping over the nine-foot wire fence. He said: "The preserve is home, and they will not leave it. Of course, a few get away. But we have had a whole flock to roost outside the preserve, and to return to it next morning. I once saw a gobbler fly from the top of Sideling Hill, 1800 feet high, cross the valley and the river, and alight in the preserve. The distance was at least two miles."

The wild turkeys of the pure strain found at the Woodmont Club are descendants of birds captured in Virginia, Maryland, West Virginia, and Pennsylvania. Some blood from the South Carolina swamp birds has lately been added. Bridges is critical to a degree about his stock; and if a newcomer manifests the faintest sign of barnyardiness—on the table he goes. The largest number of pure bred wild turkeys in the world are at (Continuing on page 550)



Mrs. Henry P. Bridges shooting at a wild turkey called by her husband, with their turkey-dog, Billy—famous in the sport. More than 1,500 wild turkeys have been shot over this dog.

EXPLORING IN A HERON COLONY



From a vantage point aloft, the tops of the evergreens were seen to be festooned with the crude nests, built loosely of large sticks and sketchily lined with mosses and leaves.

By

KENNETH FULLER LEE

(Photography by the author)

NORTHERN Franklin County, Maine, abounds in lakes and streams stocked with fighting trout and salmon. For several years complaints had come to my ears from anglers that a colony of Great Blue Herons had settled in the area and were ruining the fishing by preying upon the trout and salmon. "You'll find a Blue Heron every hundred yards on the best trout streams," I was told. Now, *Ardea herodias* is protected by federal law, but as everyone knows, federal game wardens are so few in number that it is not possible for them ade-

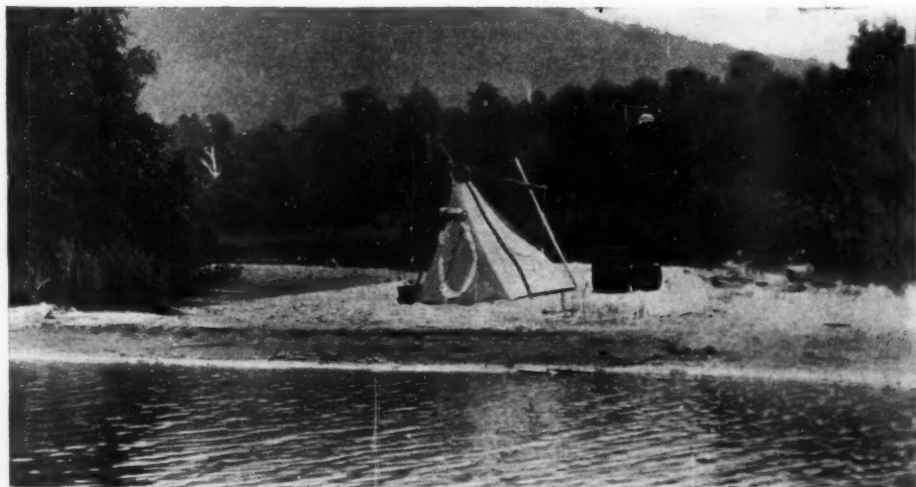
quately to patrol the entire United States. What, then, was the truth about this situation? Were the herons actually as harmful as Dame Rumor claimed?

With my wife as companion, I decided to investigate and make a report, both written and photographic.

No one seemed to know exactly where the great, grey fishermen lived when they were at home, but as most of the reports had been coming in from Kennebago, we decided to go there first. And so, in early August, our little green silk tent was pitched on a flat,

sandy beach on the east shore of lovely Kennebago Lake, with Black Cat Mountain slanting steeply up to the sky directly behind our camp-site. That first night we heard guttural croakings from the trees on the mountain-side. Several times the soft swishing of four-foot wings swept over our little driftwood fire, as scouts from the heron colony came down the aerial trails to investigate our presence.

Strong sunlight flooded the dark green of the mountain slopes next morning, and we sat in the sand and



The little green silk tent was pitched on a flat, sandy beach.

scanned the green timber with powerful binoculars, finally locating the exact spot from which the winged fishermen were rising. We had found our colony! So we ate a leisurely breakfast of crisp trout and bacon, and next stowed the big Graflex with its telephoto lens in my basket pack, tucked the little sixteen millimeter motion picture "gun" in beside it, and prepared a rather sketchy lunch to take up the mountain.

Our trail led through mixed hardwood growth at first, and the wicked little black flies took such a severe toll that finally we were forced to stop and literally paint ourselves with my own pet mixture of pine tar and citronella, which even a black fly must respect. We travelled by ear, the continual clamor arising from the heron colony being guide enough for anyone. In half an hour a pair of scouts swept over, glaring down at us with wild yellow eyes, then wheeling away with deep, scornful croaks of warning.

Birds can communicate intelligibly, there can be no doubt of that! One moment we were all but deafened by the clamorings of thousands of birds yelling outrageously. A single croak of warning, and the entire mountainside became as silent as the grave. I should like to know what the old heron said to produce such an effect; it must have been something pretty drastic!

The ground underneath the tall hemlocks and firs and spruces in which the herons were nesting was white with fish in all stages of decay. Some were fairly fresh and only partly eaten, and in spite of the stench we investigated these remains carefully. Our findings, while they did not entirely exonerate the herons of the charges made against them, convinced us that the great majority of the fish taken by these big birds were common varieties such as min-

nnows, small suckers, and chub. Very few trout were found, and no salmon.

Snakes evidently formed a goodly portion of the heron's menu, and we found the badly torn skin of a young muskrat under one of the great, fourfoot nests.

Having concluded our investigations on the ground, we next made an excursion into the treetops after photographs. The Graflex, in its heavy leathern case, was attached to our light rope, and shortly the writer found himself sixty feet aloft, focussing the lens on as weird a scene as might be imagined. For several hundred feet in all directions the tops of the evergreens were festooned with the crude nests, built loosely of large sticks and lined very sketchily with mosses and leaves. The young herons were standing gawkily about, generally on one leg. The parent birds had entirely deserted the colony and wheeled high above it, croaking their disapproval.

It was awkward handling the Graflex in that sky studio, hang-



On wilderness lakes and streams, the Great Blue Heron adds an indescribable touch of wild beauty.



A baby gull, yelling for his dinner.



A big heron at close range, defiant and decidedly "on the peck," six-inch bill poised for a lightning thrust.



A young Osprey, tearing voraciously at a fish just brought in by one of its parents.

ing on with one hand to prevent breaking one's neck. Branches had to be broken off or bent back to afford a clear view of nearby nests, and the young herons showed a disagreeable tendency to turn their backs on the camera. In ten minutes my film-pack was exhausted, and my wife was dancing up and down and calling excitedly. She had found a big heron on the ground and was attempting to hold him until I arrived to make a portrait at close range. That bird was "on the peck," and he stood defiantly facing us, crest upraised with keen, six-inch bill poised for a lightning thrust at anything which ventured within range. But we got our pictures. The young birds fight among themselves, and their flat-topped nests do not make good prize-rings. Frequently one of the youngsters is crowded off, and that is the end of him. Unable to fly, he can never regain the safety of the nest, and the foxes, skunks and bobcats make easy prey of him. Scattered wings and torn feathers all about us confirmed this diagnosis, a sad lesson to all pugnacious young herons and perhaps to young humans as well. The world outside your home is apt to be filled with danger. If a fox don't get you, look out for the "Big Bad Wolf!"

Next we located an Osprey's nest atop a big, dead pine, and here my Ross telephoto saved the day. With it we obtained a picture from some sixty feet distant, showing the sole occupant of the big nest tearing voraciously at a fish which had just been brought in by one of his parents. The Ospreys are true aristocrats of the bird Kingdom. They are fond of solitude, and generally their nests are found in inaccessible heights, so we were naturally elated over our find. Father and Mother Osprey were by no means pleased at our intrusion. They came diving out of the blue directly at my treetop, and tore past me on hissing wings, screaming excitedly across the air at each other.

On the way to camp we had another bit of good fortune. Posed artistically on an old sunken log, with marsh grasses and reeds for a background, we photographed an American Bittern in an entirely typical posture. When

not actively engaged in fishing, the Bittern always holds his head in the manner shown in this picture. He does it for a very definite reason. Beak pointed at the sky, eyes scanning the upper reaches carefully, he turns his head from side to side so as to include the entire skyline in his range of keen vision.

Heron and bitterns are exceedingly slow and awkward when they first attempt to launch themselves in flight. A low-flying hawk can easily pick them up before they get under way, unless they manage to see him first. Our bittern knows this. His pose is his best protection against sudden and violent death from the air. He is an adept at scuttling through the dense marsh grasses, his brown coat makes a good camouflage, and he is an expert at the ancient device of "freezing" to avoid discovery.

One of the best pictures we made on this trip shows a baby Herring Gull yelling for his dinner. The gulls fre-

quently nest on inland lakes, and directly in front of our tent was a small, rocky island much frequented by these birds.

Our investigation of the Black Cat colony of Great Blue and Night Herons convinced us it numbered not less than 500 nests and that each nest represented an average of six birds, two adults and four young—a total population of 3,000 birds.

Spare the Great Blue Heron! On wilderness lakes and streams he adds a touch of wild beauty which more than makes up for the slight damage he may do to such wary gamefish as the trout and salmon.

Who shall say that he is not as fully entitled to his meal of fresh fish as you and I?



Posed artistically on an old, sunken log, with marsh grasses and reeds for a background, the American Bittern was photographed in an entirely characteristic posture—beak pointed at the sky, eyes taking in the whole range of the heavens.

PROS and CONS OF THE SHELTERBELT

A Symposium of Pointed Comment on the Proposal to Tree-plant the Prairies

REDUCED to an initial budget of \$1,000,000 instead of \$10,000,000 as originally anticipated, the United States Forest Service is going forward with the prairie shelterbelt project confident that funds will be provided later to carry it forward from year to year. Comptroller McCarl's action in withholding funds, however, combined with criticism and a clearer appreciation of problems involved, has deflated the project from its original idealistic and somewhat fantastic form and has flattened it out on the hard-pan of prairie realities.

Indications are that the Forest Service is proceeding cautiously in its preliminary work and is approaching the problem on the basis of feeling its way through study and exploration rather than adhering to the "blue print" plans calling for continuous strips of trees a thousand miles in length. This plan, it is admitted, has been scrapped and first plantings at least will be on selected areas regardless of their continuity or adherence to section lines.

With the million dollars available, the first year's activities contemplate an intensive study of the shelterbelt zone from the standpoint of tree planting possibilities, location of favorable and useful sites, collection of tree seeds, preparation of ground for later planting, contracting of planting stock from commercial nurseries for later delivery, and the making of preliminary agreements with farmers for land to be planted. Owing to the lack of available planting stock little actual planting will be possible next spring. Estimates place the amount of suitable stock available prior to the spring of 1936 at approximately ninety million trees, which would make possible the planting of only about one thousand acres.

Organization of the field force contemplated has likewise been subject to revision. Fred Morrell, who was originally designated as administrative director of the project, will remain in his present position as Assistant Forester in Charge of Public Relations, and Paul H. Roberts, Administrative Officer in the Washington Branch of Research, has been named to take his place as acting director of the work. Mr. Roberts has assumed his duties at the Regional Shelterbelt Office recently established at Lincoln, Nebraska. Members of his field staff thus far named include Alva Simpson, Supervisor of the Gallatin National Forest, in charge of lands; D. S. Olson of Region One, in charge of nursery and planting practice; R. E. Clark, Supervisor of the Rio Grande National Forest, in charge of operation; and William B. Ihlanfeldt of Region Nine, in charge of accounts. Organization plans further contemplate the selection of men in each state involved to have general field supervision of the plantings in their states. Dr. Raphael Zon and his research staff of the Great Lakes Forest Experiment Station continue in a technical advisory capacity.

Uncertainty as to future funds and lack of a thorough ground study of the region in question imbue the undertaking with a high degree of doubt as to its future development, its eventual magnitude and the form in which it will be carried out. It is understood that the Forest Service expects to have a more concrete and practical plan to submit to Congress for supporting appropriations. Additional funds must be obtained through direct appropriation by Congress or by emergency funds which the Comptroller can legally approve for the work.

Since first announcement of the undertaking the project has been subject to a wide range of comment on the part of men intimately familiar with prairie conditions and the problems of tree planting in the different states involved. In an effort to obtain an appraisal of the project by such men, the Editor of *AMERICAN FORESTS* wrote a number of them soliciting their judgment. Replies indicate a wide divergence of opinion. Mr. Henry S. Graves, Dean of the Yale Forest School and formerly Chief Forester of the United States Forest Service, while favorable to a cooperative undertaking in shelterbelt planting is pointedly critical of the plan proposed. "I regret that I am unable to endorse the shelterbelt project in the form announced to the public," he writes. "I am in favor of a large cooperative undertaking, backed by liberal federal support, of the use of shelterbelts in improving agriculture in the Central Basin. I hope that the Forest Service will be able to modify its plan in a way to command the confidence of foresters, land economists and scientific men generally."

Mr. C. B. Waldron of the Department of Horticulture and Forestry, North Dakota Agricultural College, points out many difficulties which the project involves. "As one who has planted trees and encouraged and given directions for tree planting in North Dakota for forty-four years," he states, "the writer naturally welcomes any undertaking that promises to hasten the materialization of the things for which he has long striven."

"If he sees difficulties in the present ambitious scheme that may not occur to the average person, it is because he has been brought face to face with hundreds of tree planting projects."

"Until the last few years of severe drought it was our belief that on any land where farmers could grow crops, groves of trees could be established if the right species and methods were used. Now that we have witnessed a rapid decline in the condition of both natural and artificial timber tracts, we realize that nothing can overcome very adverse natural conditions."

"Even when a series of extremely dry years does not occur to bring havoc to our tree plantations, the life of a shelterbelt or average farm grove is comparatively short because of lack of natural reproduction such as takes place in well managed tracts of native timber."

"The lack of success in timber growing in the prairie states has not been wholly due to unwise selection of species or wrong methods in planting and lack of care as has so often been stated, but largely to unfavorable natural conditions, particularly insufficient rainfall."

"Trees can be grown to an age of twenty to thirty years without great difficulty in most situations, but after that, their greater requirement for moisture means a slowing up of growth or an actual decline in unfavorable conditions or in very dry years. Under any but the most favorable conditions, due to natural soil moisture, the groves of North Dakota have not improved after forty years and at the end of fifty years, most of them are gone."

"This does not mean that we should not plant trees, but rather that we must keep renewing them at intervals, getting the new plantations well started before the old ones have passed out for the most of us cannot reconcile ourselves to living in a treeless country."

"With this knowledge as a background, what can be

hoped in the way of the successful outcome of the shelterbelt planting project?

"First, some twenty to twenty-five years must elapse before the trees attain a growth sufficient to bring about the beneficial effects claimed for them.

"Second, over most of the area the trees will begin dying rather rapidly at the end of about forty years with little chance of survival beyond fifty years. This is assuming that the conditions for tree growth will be the same for the next forty years as for a corresponding period in the past. This would mean that in order to maintain the shelterbelt perpetually on an effective basis, the original planting would have to be duplicated each twenty-five years, though, of course, on different strips of land.

"By using largely the Rocky Mountain yellow pine, if planting stock were available, the life of the timber strips would be considerably longer, though the growth would be slower. It will be seen then, that in this project as in many others, it is not only the original cost, but the upkeep, running into several millions of dollars each year, that must be considered.

"As to the value of the shelter, once it is grown and maintained, that is another story. In North Dakota, as in most other parts of the area under consideration, their chief use would be in checking the winds that in seasons like the last have been all the way from damaging to destructive. In order to accomplish this, the individual belts would have to be planted east and west as the high winds are from the north and south. As a windbreak is supposed to protect about a rod in horizontal distance for each foot in height, it will be seen that strips a mile apart will still leave most of the land unprotected against loss of moisture and the blowing and drifting of the soil.

"That something needs to be done to alleviate the distressful conditions that existed in the current year is a foregone conclusion. Our opinion is that if means were made available for each farmer to plant belts of trees a quarter of a mile apart on his own land that he would consider himself well repaid for the use of the land and for the care of the trees. The effect of shelterbelts, whatever it may be, is immediate and local and to picture them as having a farflung and widespread influence upon the climate of a large section of the continent is a presumption wholly unwarranted in the light of present available data."

George F. Will, a prominent nurseryman of Bismarck, North Dakota, who has had wide experience in tree planting in the plains region, believes that the undertaking is doomed to failure if carried through along the lines announced. He writes: "I feel quite sure that as originally announced and outlined the shelterbelt can be nothing but a failure as a whole. There are a very large number of acres throughout the territory which, owing to elevation, drainage or soil conditions and content, cannot under any circumstances support a growth of trees, and many portions of the shelterbelt are bound to cross such areas. It seems to me, therefore, that if a project of this kind is going to be put through at all it will necessitate a rearrangement by which selected areas scattered over the whole project area and picked for their adaptability to tree growing should be planted and the continuity of the belts forgotten.

"On nearly every farm in the territory there may be a few acres of suitable ground for timber planting and perhaps the whole area required could be gotten in by selecting such spots. Whether it would have the same effect, however, as is hoped for by the continuous belt seems improbable. As a matter of fact, I am rather doubtful that such a continuous belt, even if successful, would have the effect that is claimed for it as to reducing wind activity

and increasing rainfall. It might be worth noting that there has been a continuous belt of heavy forest running across North and South Dakota along the Missouri River for a great many centuries. Yet the effect of this belt two miles away from it seems to be so slight as to be not appreciable at all.

"At least through most of the Great Plains region I question whether the sacrifice of land to the tree area would be any problem. On the individual farm the value of even a small grove for stock shelter, windbreak for the garden and home and source of kindling would be much greater than the ordinary production value of the same acreage even of the best land for farm crops."

On the other hand, F. E. Cobb, President of the North Dakota School of Forestry and State Forester of North Dakota, gives the project wholehearted endorsement. Mr. Cobb is in a position to speak from long experience in that he has been connected with shelterbelt plantings in the Great Plains since 1915 and helped initiate the shelterbelt work of the United States field station at Mandan, North Dakota.

"As to the technical soundness of this large federal project, I would unquestionably state that it is entirely sound and with the proper species of trees and previous preparation followed by subsequent cultivation and supervision should give a high degree of success. In normal years our success in such plantings has been about ninety per cent, that is with hardwoods. Both the United States Field Station at Mandan and the State Forest Nursery here make it a rule to replace first year losses the following spring only. After that time the other trees have made such a growth that smaller replacements made are not able to compete and soon die or remain stunted. * * *

"Even during these last five years of drought in North Dakota our plantings have been uniformly successful, where the land had been properly prepared the summer previous to spring planting and had received the proper subsequent cultivation. In the northern plains, trees must be cultivated until the rows grow together enough to preclude such operations.

"As to the effect on the climate, which means over a wide area, I would hesitate to hold out any encouragement. This summer's drought, extending through the wooded areas of the Mississippi valley as far as Ohio, would indicate that the trees have not prevented the drought conditions. As to local influence, this is a debated question. In our State Nursery here, consisting of approximately twenty acres almost surrounded by trees and with numerous cross hedge of trees of varying sizes, we have had dirt blowing. But no doubt when the steady northwest or southeast winds blow, which prevail in the northern plains, the surface of the ground will be less affected by the resulting evaporation with belts of trees every mile. Within the one hundred mile strip farming conditions under normal rainfall and weather conditions should be improved. Outside of this strip I doubt very much that there will be a difference.

"Now as to the survival of such plantings. In certain sandy loam soils there are now plantings of cottonwood and green ash surviving after thirty to fifty years, even on abandoned farms. Where the soils are heavier, tending to clay, it may be necessary to begin the renewal of such belts in twenty-five or thirty years or earlier if a long drought condition arises again. To eastern people unfamiliar with soil conditions here it is difficult to believe the amount of moisture that is held in the soil during short periods of drought of from one to three months. Of course, when several years of drought follow consecutively it is finally lost and needs several normal (Continuing on page 545)

SWEET GUM

Liquidambar Styraciflua. Linnaeus

SWEET gum—commonly called red gum—flourishes from southern Connecticut to Florida and west as far as eastern Texas, Oklahoma, Arkansas and southeastern Missouri, where it prefers rich, moist soil and, while not a swamp tree, grows vigorously on occasional flooded land. It also grows on high land, but seldom attains as great size as along stream bottoms where it grows in mixture with red maple, elm, ash, cottonwood and several oaks. A closely related variety reappears in the mountains of central and southern Mexico and in the highlands of Guatemala. Sweet gum trees eighty to 120 feet high and eighteen inches to three feet in diameter at breast height

are common. Occasionally, however, they attain heights of 150 feet and are five feet in diameter. They are most abundant and attain greatest size in the bottomlands of the lower Mississippi Valley and the southeastern coastal states. In the forest the trunk is straight and clear of side branches for approximately two-thirds of its height, but young open grown trees have a pyramidal crown with a straight central stem like that of a coniferous tree. With maturity, the side branches become heavier and develop a narrow but more irregular crown.

Sweet gum is frequently confused with black gum and the tupelos, but belongs to the witch hazel or *Hammamelidaceae* family. It has three closely related species—one in Mexico, one in central China and a third in parts of Asia Minor where the liquid storax of commerce is secured. The scientific name, *Liquidambar Styraciflua*, was given by the Swedish botanist, Carl von Linne, and refers to the yellowish, fragrant, balsamic



Sweet gum becomes a tall symmetrical tree when grown on rich moist bottomland, but will do well on high, well drained soils. The clean trunk, dense glossy green summer foliage, gorgeous autumn coloring and comparative freedom from pests make it an increasing favorite for street and ornamental planting.

The slender side branches of the straight central trunk support twigs with corky wings or ridges, and dangle dry seed balls through the winter.



liquid which exudes from the bark. This resembles the liquid storax of commerce, for which it is frequently substituted. Trees near the northern limit of its range yield little resin, but the flow is abundant in the South.

The glossy, aromatic, star-shaped, five to seven-pointed alternate leaves give rise to the common name, "star leaved" gum. The name "red" gum refers to the color of the wood, but applies also to the brilliant autumn foliage, which compares with that of the maples.

The flowers of both sexes occur separately on the same tree. In the South they appear as early as March, and in the North during April or May, when the leaves are about half grown. The clusters of hairy, green, pollen-producing flowers are two or three inches long, and at the ends of the new growth. The seed-producing flowers hang as greenish balls on long-thread-like stalks from the base of the upper leaves. These develop into brown seed balls or burs one to one and one-half inches in diameter and remain swinging on the trees through the winter. Each seed ball consists of a number of closely connected woody, horn-tipped pods in which are enclosed the seeds. With maturity the pods split apart permitting the half-inch long, winged seeds to escape.

The slender first year twigs are light orange to reddish brown with prominent lenticils. After the second year corky wings or ridges develop. Larger branches have a broken warty bark which gives the tree the name, "alligator wood." The soft deeply furrowed dark gray bark of the main trunk may be over an inch thick.

Sweet gum develops a long, strong tap root in deep bottomlands, which usually prevents loss from windfall and encourages vigorous growth. The lumber was long discriminated against because of its tendency to warp and twist. Technical studies of the wood structure, and development of kiln-drying during the present century have largely overcome these difficulties. Lumber production of sweet gum now ranks third among American commercial hardwoods. Gum saw-timber manufactured in 1932 was 202,267,000 board feet but in 1927 the production exceeded a billion feet, of which over one-half came from Louisiana, Mississippi and Arkansas. Nearly one-eighth of all hardwood timber growing in this country is sweet gum. This was estimated in 1932 to be 15,488,000,000 board feet of saw-timber together with 25,136,000 cords of cord wood.

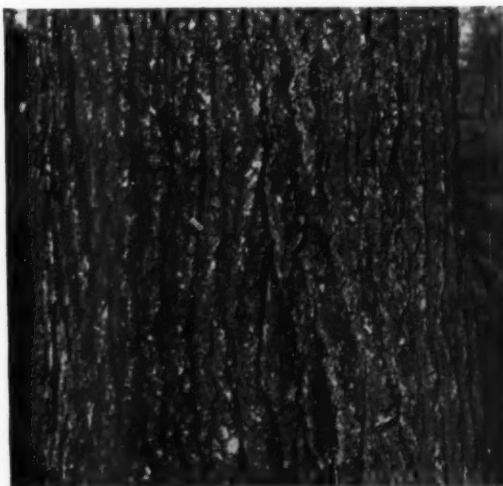
Sweet gum wood is as strong and stiff as chestnut, can be worked with tools as easily as yellow poplar and the air-dry weight is thirty-four to thirty-seven pounds to the cubic foot. The hard, straight, close-grained wood is bright brown tinged with red and has a thin white sapwood. The heartwood has a satiny luster and pleasing, varying figure. Few American woods equal sweet gum in beauty of natural grain, but, in deference to the prejudice against "gum" wood, it is frequently marketed as satin walnut, Circassian walnut and hazel wood. Furniture, interior trim, railroad ties, cigar boxes, boxing, crating material, cheap flooring, veneers, barrels, wooden ware and wood pulps are among its many uses.

Growing largely on lands subject to overflow, fire damage is small. Insects and fungi attack felled trees and those which have been injured by fire and wind, but loss from these sources is not serious.

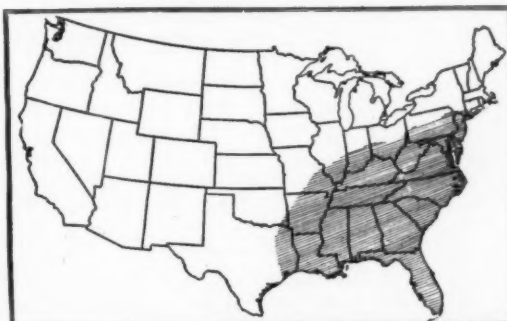
Sweet gum is superb for ornamental planting, ranking with the most beautiful of our eastern broad-leaved trees. It is hardy as far north as Massachusetts, is easily planted and grows fairly rapidly. The splendid fall coloring—gorgeous scarlet, orange and yellow tints as well as purple, lilac and brown tones—together with its freedom from pests make it especially attractive on streets and lawns.



In early spring clusters of green pollen-bearing flowers, glossy green aromatic five-pointed leaves, and dry, horn-tipped seed balls of the previous year are characteristic features of sweet gum.



The soft gray bark is deeply furrowed and usually about an inch thick.



Natural range of sweet gum in the United States.

FIELD AND FOREST FOR BOYS AND GIRLS

By JOHN HARVEY FURBAY

Illustrated by William D. Vennard

HOW NATURE SCATTERS AND STORES HER SEEDS

DURING November, Nature makes her final preparations for winter. The last of the migrating birds pass over us; frogs and turtles are digging into the mud for a long sleep; no ants are seen on the mounds; and the air is cleared of practically all insects. The last crickets may still be chirping to keep up their courage, and a few lone mourning cloak butterflies may still be found seeking hiding places under the limbs of trees where they will freeze completely in the winter winds, but will revive in the spring—a miracle of Nature!

Most of the leaves are gone from the trees by the end of November, although some maples, beeches, and oaks may retain theirs all winter. Birds' nests are most easily found now after the leaves have fallen. A few wild flowers are still seen. Even violets are sometimes found in November if the weather is quite warm. Walnuts and hickory nuts are fully ripe.

By the close of the month, a general exodus of animals has been completed. Likewise, the plants have closed shop for this season, and will not return to production schedule until the bitter winter days are past and the reviving sunshine of spring again warms the earth.

Most of our plants produce flowers, which are often called blossoms; but some of them, like the cones of pine trees, may not even be recognized as flowers. The real purpose of all flowers is to produce seeds, and Nature then provides a way of planting these seeds.

Seeds contain a tiny plant only partly developed, along with a large supply of nourishment to start the young plant growing. This is all enclosed by an outer coat which protects it until it is ready to grow up into a new plant. Some seeds are surrounded by juicy material. These are called fruits. The apple is a good example, with the seeds in the "core." Some fruits, like the tomato and the cucumber, are called "vegetables." Other seeds, like nuts, are enclosed in a very hard shell. Still other seeds, such as wheat and corn, are called "grains." Whether called fruits, vegetables, grains, or nuts, they all contain or produce seeds, and these seeds, when planted in the right kind of soil, and with plenty of sunshine and rain, develop into new plants like the ones which produced them.

It is not enough for these seeds just to fall to the ground beneath the mother plant, because this would put too many seeds in one place, and they would choke one another till only a few or none would live. Then, also, there would not be enough food there if the mother plant still was growing.

And if all the seeds were dropped in one spot, they would be more likely all to be killed at one time by bad weather or by some animal.

So Nature has developed one of the best plans possible for scattering these seeds long distances from the mother plant. Having already put water, wind, and animals in the world, Nature devised little structures on the seeds to float in water or on the wind, or to catch hold of animals as they passed by the plant. These three agents are her greatest helpers in scattering seeds.

Wind is by far the most useful of these agents. It carries seeds for many miles. But it cannot carry all kinds of seeds,—just those which Nature has made very light, or with little wings. The seeds of maple trees have two wings spread out to sail in the wind; and the many seeds of the dandelion have little plumes like parachutes for being blown about, which is one reason why dandelions are found growing almost everywhere.

Other seeds which have been built to be carried by the wind are those of the thistles, cat-tails, milkweeds, and elm trees. Many heavier seeds are blown short distances from the mother plant, but are not carried far. Special devices for being carried by the wind are shown by the "tumble weeds." I have seen great bundles of them being carried across miles of country, often piling up quite high when they reach fences. A good example of tumble weeds is the well-known Russian thistle. It grows in the shape of a large ball, and when the seeds are ripe, the main stem breaks off at the ground. The whole plant starts rolling before the wind, and as it is

carried mile after mile, bumping along on the ground, it scatters its seeds.

Animals form Nature's second great group of agents for scattering seeds. In order to be carried by animals, seeds must be either good to eat or must be provided with little hooks for catching hold of the animals. Many seeds which are eaten are cast off uninjured, along with other waste material, usually some distance from where they were eaten.

Nature has wonderfully protected these seeds from being eaten too soon by making them sour or bitter before they are ripe. Birds are probably the greatest agents for carrying seeds which they have eaten. The fruit around the seeds is often eaten, and the seeds discarded. This is what happens when you eat an apple, and throw away the apple-core. Nature has made some other seeds able to stick to the legs, hair, fur, and wool of animals—as well as to the clothing



of man—and be carried in this way. You have all found burs, Spanish needles, or beggars-ticks on your clothes after a walk in the country in the fall of the year. You were carrying home—all unknowingly—the seeds of these plants. Such seeds are provided with little hooks for catching into your clothing, or into the hairs of passing animals. Some other seeds, like those of plantain, secrete a sticky substance which glues them to passing objects.

Water is the third agent of Nature for scattering seeds. The coconut is often carried hundreds of miles by floating in rivers or oceans. Many other common seeds are washed away during heavy rains, and if light enough to float, may be carried great distances by the water.

There is one more very interesting means of scattering seeds which I have not mentioned. Some plants develop their seeds in little cases, called pods. Examples of this are the wild cucumber, phlox, jewel weed, witch-hazel, and the common violet. When these pods are ripe and dry, they curl up; and being tightly stretched, they suddenly burst open with a snap, and send the seeds flying out in all directions.

Nature has planned her great gardens well, and with her three gardeners—wind, animals, and water—has many interesting ways of keeping them filled with living things. Many plants live but one season and die. Before they die, they produce seeds which Nature carefully protects until they can grow into new plants. Other plants which live many years may produce countless numbers of seeds each year. Since there are many dangers which im-

peril the seeds, Nature has provided numerous methods of protecting them. Bulbs and perennial plants remain in the ground over winter in cold storage. The bulbs of the common Jack-in-the-pulpit sleep quietly in the soil only a few inches deep. The frost does not hurt them but they need protection from rabbits and squirrels, so they are provided with a very bitter, stinging taste which insures safety from these animals.

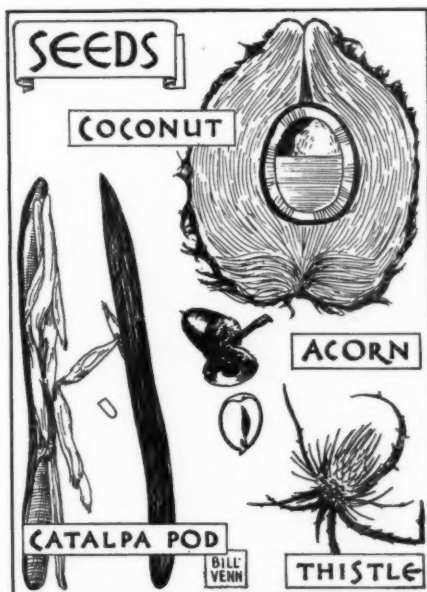
Some aquatic plants, such as the wild rice which the Indians used much for food, drop their seeds into the water as they ripen. These seeds remain quiet all winter, and in the spring send up their green blades. Many of these seeds are devoured during the winter by water birds, but there always remain enough to start the new plants in the spring.

Many trees and shrubs keep their seeds attached to themselves over winter and let them fall to the ground in the spring. The honeylocust tree, the coffee-bean tree and others keep their seeds in pods or capsules where they are kept as dry as in a farmer's granary.

Seeds are produced in far greater numbers than is necessary for the new crop. They may fall to the ground or blow about in the wind till they lodge somewhere. Frost

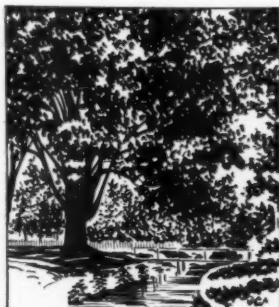
does not harm most of them; neither does drought or flood. Birds feed upon them and devour great quantities, but there are plenty of seeds left, which have escaped the birds, when spring arrives.

On January 16, 1860, Thoreau wrote in his diary that he had seen a flock of tree sparrows (Continuing on page 552)



FAMOUS TREES EVERY BOY AND GIRL SHOULD KNOW

No. 19 - - THE "WASHINGTON ELM" AT BERKELEY SPRINGS



AT BERKELEY SPRINGS, WEST VIRGINIA, STANDS THE FAMOUS WASHINGTON ELM PLANTED BY THE FATHER OF OUR COUNTRY. BENEATH ITS SPREADING BRANCHES INDIANS STALKED, RIFLEMEN GATHERED TO DRILL, AND IN CIVIL WAR DAYS JACKSON'S FOOT-SORE ARMY DISTURBED ITS WINTER SLEEP AS IT WENT MARCHING UNDERNEATH.



IN THE YEAR 1847, THOMAS LORD FAIRFAX, DESIROUS OF KNOWING THE EXTENT AND VALUE OF HIS LANDS LYING WEST OF THE BLUE RIDGE MOUNTAINS, ENGAGED A YOUNG SURVEYOR. THIS YOUNG MAN WAS GEORGE WASHINGTON. TODAY ONE MAY SEE THE ELM PLANTED BY WASHINGTON AND MARKING THE BOUNDARY OF LORD FAIRFAX'S GRANT.



IN HIS JOURNAL OF THIS SURVEY WASHINGTON MENTIONED THE MEDICINAL VALUE, VOLUME AND TEMPERATURE OF CERTAIN SPRINGS. TRADITION HAS IT THAT THE LAND IN THE IMMEDIATE VICINITY OF THE SPRINGS WAS HELD NEUTRAL AND TO THEM THE SHANNEES, TUSCARORAS, DELAWARES AND MINGOS BROUGHT THEIR SACK. AS THE VALUE OF THE WATERS BECAME KNOWN WHITE MEN CAME AND THE SETTLEMENT OF WARM SPRINGS WAS STARTED.



WARM SPRINGS HAS GIVEN WAY TO THE NAME OF BERKELEY SPRINGS AND STILL THE RILING COME FOR THE HEALING WATERS. IN A PARK NEARBY THE SPRINGS, THE GREAT WASHINGTON ELM NOW STANDS, MARKED AND CAREFULLY PRESERVED FROM THE DESTROYING HANDS OF TIME.

AROUND THE STATES

WITH
THE AMERICAN FORESTRY ASSOCIATION



American Elm Faces An Emergency

"Unless the Dutch elm disease can be wiped out within the next twelve months America must lose her splendid elms. An emergency exists that demands the use of emergency methods." These were among the statements made by Walter O. Filley, of the Connecticut Agricultural Experiment Station at New Haven, during a public hearing with Acting Director of the Bureau of the Budget Daniel W. Bell, on October 4. They followed closely The American Forestry Association's appeal to President Roosevelt to have the Federal Government move promptly and more adequately to control the disease before it gets beyond control. The Association urged that the Civilian Conservation Corps be drawn on as "shock troops" to help cut and destroy all dead and dying elms within the disease-infested area of Connecticut, New York and New Jersey. Competent authorities estimate that from 10,000 to 50,000 such trees are now standing.

"Unless these infection carriers are removed during the coming winter," Ovid Butler, Secretary of The American Forestry Association, wrote the President on September 28, "the task of dealing with new infections next spring will be a well nigh impossible one. Failure to remove these trees may result in the infection of some sixty to one hundred thousand additional elms during the summer of 1935. Once the disease gains that impetus, control efforts will be futile and money spent will have been wasted."

The Budget Bureau was urged to approve an emergency allotment of \$950,000 for use during the remainder of the present fiscal year. Half of this would be available during the fall and winter for the removal and destruction of all known diseased elms, and all dead or dying elms in Connecticut, New York, New Jersey and Pennsylvania. The remainder would be held for prompt and systematic location and destruction of diseased trees as they become apparent during the growing season beginning about April 1 and continuing through June.

Supplementing the emergency funds, Mr. Butler urged a concentration of man-power in the form of "shock troops." "The Federal Government has at its disposal," he continued, "a mobile army of 300,000 'shock troops' in the Civilian Conservation Corps. This tree army has already proved its worth and its adaptability to meet the emergency in the event other and better methods of combat are not readily possible. There can be no finer, more appropriate or more important service it could render the American people than that of saving the American elm. This service alone would be worth its whole cost."

Dr. W. H. Rankin, Supervisor of Dutch Elm Disease Control in New York, together with other officials in charge of control efforts in New Jersey, New York and Connecticut, where more than 7,000 elms have been definitely diagnosed as dead or dying from the disease, made the following statement to prominent Government officials:

"The Dutch elm disease control problem

must be given immediate planning or the efforts and funds already expended will have been wasted. Furthermore, unless all standing diseased trees are removed this fall and adequate insect-carrier sanitation measures are completed this fall and winter, any further program would be so severely handi-



H. W. MacKENZIE

H. W. MacKenzie has been appointed Director of the Wisconsin Conservation Department, succeeding F. W. Kelleter. Mr. MacKenzie is a Wisconsin man and has been connected with the state conservation activities since 1917. Beginning as a warden, he rose to be chief conservation warden in 1925, and was appointed superintendent of law enforcement in 1930.

capped that total abandonment of an eradication program would be advisable. The Dutch elm disease control planning must be national in scope and therefore the duty of carrying on the necessary measures rests primarily with the United States Department of Agriculture."

Recognizing that this disease, which was first discovered in America in 1930, must be attacked with unusual energy during the remaining months of the present fiscal year, and for the year to follow, the Budget Director was urged to include in the regular appropriations of the Department of Agriculture for the fiscal year beginning July 1, 1935, a total of \$1,400,000.

Shenandoah Settlers to be Moved

One of the final steps in securing official establishment of the Shenandoah National Park in Virginia is the removal of 340 families from within the area and their satisfactory reestablishment upon other lands to be provided through the Federal Subsistence Homestead Corporation and the Federal Emergency Relief Administration. Frank Hanrahan, recently appointed Manager of the Subsistence Homestead Project for that part of Virginia, is pushing the work that the lands may be wholly unencumbered and acceptable to the National Park Service early in the winter.

A census of the area revealed 465 families made up of 2300 individuals who for years have eked out a bare existence by farming small plots of submarginal land supplemented by hunting, occasional work in the woods, on roads and elsewhere. Many owned no property, but were squatters on unwanted land, or tenants by sufferance who paid no rent. During the past year more than a third were on relief rolls, and the change is expected to demonstrate that the proper use of desirably located land can raise their standard of living. Officials report that most of the families to be moved to the subsistence homesteads are those without sufficiently clear title to the state.

Options on four sites proposed for the Homestead Unit have been obtained within a few miles of the park boundary and others are under consideration. With purchase of the land completed, substantial but modest homes and outbuildings will be erected and the families moved to them as rapidly as practicable. Each family will have eight to fifteen acres of land, a cow, two pigs, a dozen chickens and necessary seed and fertilizer for spring planting. The completed homesteads will cost between \$1,050 and \$1,550.

Until removal of these settlers is accomplished, together with final approval of the deeds to the 176,429.8 acres of land recently turned over by the State of Virginia to Secretary Ickes, of the Department of the Interior, the Shenandoah National Park cannot be placed under the administration of the National Park Service.

California Aids National Forest Land Acquisition

California has opened the way for purchase by the Federal Government of private land for National Forest areas in the West. The passage of an act on September 13 by the State legislature, which consents to the acquisition of private land for National Forest purposes under provisions of the Act of March 1, 1911, is the first instance where National Forest areas may be acquired by land purchase in the western states, according to S. B. Show, chief of the California National Forest region. Hitherto, National Forests in the western states have been created from the Public Domain by presidential proclamation with the consent of Congress.

With the signing by Governor Frank F. Merriam, of California, of the act of September 13, 1934, the way will be cleared for the acquisition by the United States Forest Service of private lands in the redwood region of California for National Forest purposes. The redwood lands passed to private ownership prior to the organization of the Federal Forest Service, and when a National Forest is created in this region, it will be the only one of its kind in the United States.

Soil Erosion Program Greatly Expanded

An additional allotment of \$10,000,000 to the Soil Erosion Service of the Department of the Interior brings the total amount allotted during the past year by the Public Works Administration for combatting soil erosion to \$20,000,000. With these additional funds Director H. H. Bennett has announced an 8,200,000 acre project in the upper watershed of the Gila River in Arizona and New Mexico and three other smaller projects in Minnesota, North Carolina and Pennsylvania. This makes a total of twenty-eight approved cooperative erosion control projects whose combined areas total 27,111,000 acres. Although distributed among twenty-five states, over eighty-nine per cent of the land included among these demonstration areas is in New Mexico and Arizona.

In these states the Gila River project and the 16,000,000 acre Navajo Indian Reservation demonstration area comprise the two largest and most comprehensive conservation projects ever undertaken in this country. Most of the land in the Gila River area is federally owned. National Forests cover some 3,034,000 acres or thirty-seven per cent of the total area; Indian Reservations, 1,066,000 acres or thirteen per cent; Public Domain, 3,854,000 acres or forty-seven per cent; and state or privately owned only 246,000 acres or three per cent.

Wood Technologist Helps Unravel Lindbergh Mystery

Arthur Koehler, wood technologist of the Forest Products Laboratory, United States Department of Agriculture, Madison, Wisconsin, has contributed highly important evidence towards solution of the Lindbergh kidnapping case. For months Koehler has been quietly searching through his microscope for the lumber from which the ladder used by the abductors was made. On September 25, C. P. Winslow, Director of the Laboratory, announced that as a result of Mr. Koehler's studies representatives of the New Jersey State Police had been able to trace to destination lumber containing identical distinctive markings occurring in the ladder. These apparently similar pieces of lumber were found at the retail yard of the National Lumber and Millwork Company in the Bronx. This is the company where, it is reported, Bruno Hauptmann was sporadically employed shortly before and after the kidnapping.

Since the arrest of Hauptmann, Mr. Koehler has again been called upon for detective work. He is engaged in a microscopic examination of lumber from Hauptmann's demolished garage in an effort to unearth further evidence that may link the Bronx carpenter with the actual kidnapping of the Lindbergh baby. Mr. Koehler's latest work is being conducted at a specially established laboratory at Willburtha, New Jersey.

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THE ARBITER OF THE OPEN RANGE

COLLEGE graduate, cow-puncher, lawyer, stockman, Farrington R. Carpenter, Director of the new Branch of Grazing created by the Department of the Interior to administer grazing on the Public Domain under the Grazing Act passed by the last Congress, enters the national conservation picture as a dark horse. When Secretary Ickes announced his selection for the important task of eliminating overgrazing and subsequent erosion on the Public Domain, conservationists asked, "Who's Carpenter?" His name, qualifications for the position and views in respect to restoration of the far-flung and down-trodden open range were unknown in the annals of the conservation movement.

Press reports stated that he was a stockman living at Hayden, Colorado, who after being graduated from Princeton in 1909 and the Harvard Law School in 1912 had proved up on a homestead in Colorado and had since built up the fifth largest herd of Hereford cows in the United States. As a matter of fact, Mr. Carpenter since leaving college has been active as a lawyer as well as a cattleman. He was county attorney for Routt County from 1920 to 1928 and District Attorney for the Fourteenth Judicial District from 1928 to 1932. From 1917 to 1919, he served in the Army, enlisting as a private and retiring as a first lieutenant. Born at Evanston, Illinois, in 1886, he went to Mexico at the age of thirteen and has lived in the West ever since except during the period of his education at Princeton and Harvard.

He is the cow-puncher type of man who has ridden the range, and as they say in the West, he knows the range problems from the grass roots up. His friends say he will bring to bear upon them a vast amount of energy, enthusiasm and native ability. In a recent letter to the Editor of this magazine, Mr. Carpenter, who had just plunged into his task of organizing the western ranges, wrote: "In setting up the first grazing district at Grand Junction, I have received the fullest cooperation from the Forest Service. The grazing districts are so intimately related to grazing

on the National Forests that anything else but close cooperation is unthinkable if the public good is to be furthered." Mr. Carpenter has never grazed his cattle on the National Forests but he has lived near the Routt National Forest and is familiar with the management of the forest ranges.

During the past year Mr. Carpenter has spent considerable time in Washington, where he worked for the passage of the bill providing for a processing tax on beef. He likewise played an important part in preparing the N.R.A. Code for the cattle industry. While in Washington last February, Mr. Carpenter appeared at a hearing of the Committee on Public Lands and sent word to the chairman that he would like to be heard. The

committee had under consideration the grazing bill to bring the Public Domain under administration. Most of the members of the committee had never heard of Mr. Carpenter but before he completed his statement he had made a lasting impression upon them. A delightful personality, a keen mind, a vast fund of knowledge and a spirit of public service characterize him. In due course Mr. Carpenter no doubt will give public expression to his views and policies in respect to the new administration of the Public Domain. In the meantime, some



FARRINGTON R. CARPENTER

insight into his viewpoint may be had from his testimony before the committee. Extracts from it are given below:

"My experience with the Public Domain has been large. I live right adjacent to the Public Domain, and I have lived there since 1902 in northwest Colorado. I worked for the big cow outfits in the early part of that time. In 1907 I quit and took my own homestead of 160 acres, and since that time up to date I have been running my own cattle. When I took my own homestead there was a large movement on the Public Domain from summer, fall, spring, and winter ranges. I took my homestead as all of us did on the spring and fall ranges. That is the intermediate range. The high range is the summer, and the low range is the winter range, naturally. In running a small number of cattle—I

started with twenty-five head—my experience was the same as that of most of the other small men out there with the Public Domain, which was that the big outfits would shove us up and shove us down. We were too little to protect what we had when the shove-up came, and we played a losing game with the big outfits, who had eighty to eighty-five per cent of the range. * * * *

I know in the west that the small man has not a chance against the big man, because I have been there. That led in our section of the State to trouble, and in some cases it led to bloodshed. I have been with parties where violence has been averted only through the intervention of the State rangers. In other cases the situation became so serious that we headed delegations down to Washington to clear up situations which we regarded as dangerous to the range.

"The second phase of the cattle business out in that country was the coming of the sheep. Sheep never got into our country until approximately in 1912 or 1913. At that time we believed that we were ruined if sheep ever set foot anywhere in that range. We fought with every means at our command to keep them out. We have tried to keep them out for various causes which are largely economic in the country where I live. We have tried a number of local laws there, laws put through our Colorado Legislature, first to prevent the sheep coming in the State, and then to regulate the claims, and finally came the range adjudication law four years ago, whereby we can adjudicate sites on the Public Domain.

"We adjudicated over a million acres of land to the exclusive use of cattle and sheep, putting them into districts. This was done by court decree. That has been our final effort to restore some kind or semblance of law and order on what is left of your property, the Public Domain, largely in our range. That has now developed into an attempt in the second part of the act to limit the grazing there, and the act has been practically nullified by our Supreme Court in recognizing 640-acre homestead filings, which, of course, you gentlemen may or may not realize are not homestead claims in any sense of the word, but they are simply to control strategic points on the range, and used largely as a subterfuge by the large interests to regulate this large area. It is largely conceded to be a failure. For the small man in my country * * * * has come to the belief that there is a process of elimination and dissemination. We believe that the Federal control over this area should be extended. That is the only chance against being completely wiped out of existence as far as the cow industry is concerned, and to have this range controlled by the Federal authorities. * * * *

Mr. White. "Aren't you apprehensive if the big sheep interests are allowed to tie up this land for ten years that they will fix improvements on it and you can never acquire that land again?"

Mr. Carpenter. "They have already got it, so we cannot lose."

Mr. White. "You and your neighbors now that have been running cattle have been put out of business by the sheepmen?"

Mr. Carpenter. "We have been restricted to range, and we have got to lease an entire area of property to exist."

The Chairman. "As a matter of fact, if you will permit me to suggest, the Secretary of the Interior will have jurisdiction of that and he will supervise and protect those individuals that you speak of now. I have no doubt he will do that."

Mr. White. "This is one of the individuals, a homesteader and a pioneer in that country, and I just wanted to get his views on it."

Mr. Swank. "You feel that the little cattleman will be protected if this bill becomes a law?"

Mr. Carpenter. "That is his only chance. We contemplate something like the forest domestic use of the range."

Mr. Englebright. "Is the Forest Service handling that phase of it successfully, in your opinion?"

Mr. Carpenter. "Yes, sir; it is."

Mr. Rich. "Don't you think if your State authorities would give you better protection than the Federal Government that it would be to your advantage to have it under the control of your own people?"

Mr. Carpenter. "Oh, you mean to turn the whole business back to the State?"

Mr. Rich. "Yes; back to the State, and have your own State authorities look after your interests rather than the Federal Government, and they would take care of the little fellow rather than have the Federal Government do it?"

Mr. Carpenter. "I think the small stockman has great faith in the Federal Government handling this right, due to the fact that a large part of these lands are used in interstate movements, and I believe experience has shown us, and that is our belief, that the best way to handle it is to handle it federally."

Mr. Lemke. "Wouldn't you prefer to have this jurisdiction in one department rather than to have it in two departments, either controlled by the Department of Agriculture or the Department of Interior? In other words, when you come to Washington, you

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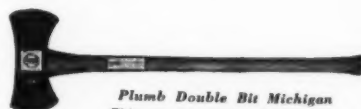
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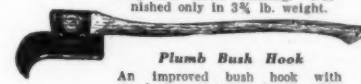
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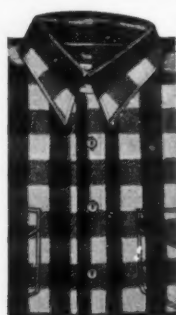
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would sooner see one boss about it than a half a dozen of them?"

Mr. Carpenter. "I do not want to see any boss, but I would rather see anything rather than have it go on as it is. Years ago you could make a claim with water rights out there. I myself had one of those claims. If you were to make a claim out there you would very soon learn what grazing is, that the fellow that can get the most blades of grass would soon have the best part and the biggest herd, just like our lands are being overgrazed by these big interests, covering them with herds, and your Public Domain is being grazed by these herds, and it is being turned into a dust pan. What form of administration it takes, so long as it improves our conditions, is immaterial to us."

Mr. Lemke. "Are there some other homesteads left out there that are as good as yours?"

Mr. Carpenter. "No sir; there are not. You see, they won't let you take up water any more. These homesteads of 640 acres are used, as I say, by all parties to get a little strategic control over grazing areas."

Mr. Englebright. "Who will not let you take up water?"

Mr. Carpenter. "The Department of the Interior is reserving all water holes for the use of the Public Domain."

Mr. Englebright. "That does not look like a very friendly attitude toward the small man?"

Mr. Carpenter. "That was done in order to give the small man a water hole, but one that he could not monopolize, and one that the big man could not take away from him. They were getting these holes and monopolizing these claims with water on them, and they were holding them up and selling the water.

They are practically extinct today, but there are other methods of getting land."

The Chairman. "In other words, they were using that privilege as a commodity and selling it?"

Mr. Carpenter. "Yes, sir; they were."

Mr. Ayres. "Do you not suppose that the condition of bringing in the herds over these lands that are brought from foreign states could be handled better and more successfully if these open public lands were turned over to the respective States where they could make laws among themselves and to affect each other, and prohibit, if necessary, the importation over the State line?"

Mr. Carpenter. "I think it is possible, but not very probable."

Mr. Ayres. "You do not think it is probable?"

Mr. Carpenter. "No; I do not."

Mr. Ayres. "Why is it not probable?"

Mr. Carpenter. "Due to the fact that the administration of State lands is different in each State, and it is administered under different State land boards, and different interests control in the different States. You will find the sheep men control in some States, and that the cattlemen control in others, and the coppermen control in others, and you would get widely divergent interests in lands combating each other. If you are going to work under systematized control you have got to make it national control."

Mr. Ayres. "The whole idea in that connection is that each State knows its own condition, knows its own livestock industry, knows its own soil and its own water better than anyone else, and it can make a law better and regulate this condition better than a national blanket law would do it."

Mr. Carpenter. "I think it could, yes; but I just doubt whether it would."

Mr. Ayres. "Don't you have faith enough in your legislators to do that?"

Mr. Carpenter. "They have never handled their State lands to any successful outcome to date."

Manual of The Trees of North America

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FORTY years went into the making of this book. Its author, the leading authority on the trees of America, was the founder and director of the Arnold Arboretum of Harvard University. In it is compressed all the essential information on the identification, description and illustration of North American trees from Professor Sargent's "Silva of North America." The resulting book of 900 pages and nearly 800 illustrations answers every question on North American tree species and gives their ranges, the properties and value of their woods as well as their English and Latin names.

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Book Department

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Bright Angel Lodge Under Construction

The announcement by Secretary of the Interior Harold L. Ickes that construction of the new Bright Angel Lodge, on the South Rim of the Grand Canyon National Park, Arizona, is to begin immediately, will be welcome news to the hundreds of tourists that annually visit the Park. The development will represent an innovation in National Park construction, designed to meet the demands of all classes of visitors.

In their rambling, one-story design, the buildings will suggest an interesting little village comprising a central lodge, a lunch room, various shops, guest houses and cabins. The traveler with the most restricted pocket-book will find comfort in simple, but attractive rooms with hot and cold running water. The visitor with a modest budget desiring pleasant surroundings and a private bath will also be able to obtain what he wants, while the guest with unlimited means will find, in an informal setting, all the comforts of a modern hotel. The provision of such varied accommodations in a single group of facilities is an experiment which will be watched with interest by all National Park operators.

Some of the buildings will be of logs, inside and out; others will be of weathered Canyon rock; and still others, of adobe. All will be in their natural surroundings, clinging to the rock strata and half hidden by the pinons and junipers.

♦ Book Reviews ♦

TREES AND SHRUBS HARDY IN THE BRITISH ISLES. Volume III, by W. J. Bean. Published by John Murray, Albemarle Street, West, London, England. 517 pages with numerous half-tone illustrations. Price 36 shillings (present exchange, approximately \$9.00).

The two previous volumes of "Trees and Shrubs Hardy in the British Isles" were completed by Dr. Bean in 1913. This volume deals largely with a great variety of trees and shrubs from the Himalayas, southwestern China, New Zealand and Chili that are adapted for growth in England, Wales and Scotland. The descriptions are all relatively brief and frequently include quoted comments from reports by the botanical explorers who first discovered the tree in its native habitat.

In the introduction are historical notes describing some of the achievements of such plant explorers as the late "Chinese" Wilson of the Arnold Arboretum, Dr. Charles Sprague Sargent and Frank M. Meyer as well as Dr. Joseph Francis Charles Rock.—G. H. C.

SONGS OF WILD BIRDS, by Albert R. Brand. Published by Thomas Nelson and Sons, New York, 1934. 87 pages, illustrated. Price \$2.00.

Here is something new for the bird-lover. While a small part of the book is devoted to an account of the procedure followed in recording the songs of birds—the technical phases of recording sound—the outstanding feature is a set of small phonograph records which accompanies the book. Each record contains the songs of eight or nine birds on each side, and identification of the singer is embodied. This will be an important aid to the student of bird life and will enable him to familiarize himself with the songs of our wild birds.

Included also in the text of the book are brief descriptions of many of the more common species of birds in which are given the approximate dates when the bird's song is abundant, his usual location for singing, and notes describing his song.—M. C.

A FIELD GUIDE TO THE BIRDS, by Roger Tory Peterson. Published by Houghton Mifflin Company, The Riverside Press, Cambridge, Mass. 165 pages. Price \$2.75.

This is an excellent and invaluable type of handbook entirely without frills and devoted strictly to giving information for help in recognizing birds in the field. Impressions, patterns and distinctive marks are presented rather than anatomical differences of the birds so that identification at a distance is simplified. The drawings give markings of the birds that can be recognized in the field and use color only when essential for identification.—R. R.

AIDS TO BOTANY, by H. J. Bonham, S.Sc. Published by William Wood & Company, Baltimore, Md. 221 pages. Price \$1.50.

Printed in England, this little book is uniform with the other volumes in the Students Aid Series and aims to provide a complete revision course for examinations on the subject normally taken in the Sixth Form of schools or at the end of the first year at universities and colleges. It deals minutely with the evolutionary tendencies of types, and the section on plant physiology stresses quantitative rather than qualitative aspects, in accordance with recent examination requirements.—L. M. C.

Strong Calls Conferences on Three Forest Pests

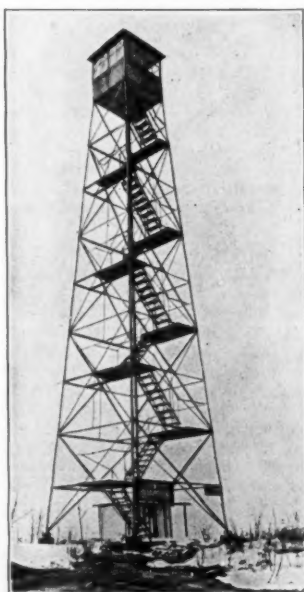
The extent of Dutch elm disease infection, possibility for its control and quarantine regulations to prevent its spread through movements of elm nursery stock, logs, lumber, etc., will be discussed at public conferences called in Washington, D. C., by Lee A. Strong, Chief of the Department of Agriculture's Bureau of Entomology and Plant Quarantine on December 3, 4 and 5.

Appraisals of the federally aided programs to control white pine blister rust, gypsy moth and Dutch elm disease planned at these conferences promise to have an important influence on appropriations and legislation in the next Congress. All persons or groups interested in any or all of these disease control programs are urged to appear or be represented, prepared to discuss the need and effectiveness of the control work, whether it should be continued and any desirable modifications or changes. The benefits resulting from past efforts and whether or not the results justify the costs will be among the results to be revealed by the hearings.

The conference of December 3 will be devoted to white pine blister rust, for the control of which federal and state appropriations made since 1916 total more than \$11,000,000. Control of the gypsy moth, now well established in New England and in parts of Pennsylvania, Long Island, and in New York City, will occupy the December 4 conference and Dutch elm disease will be discussed on Wednesday, December 5.

Graduate Work in Forest Soils

Because of the increasing interest and importance of soils in forest nursery practice and reforestation, special facilities for graduate work in forest soils have been made available at the University of Wisconsin. The work includes soil physics, soil chemistry, soil biology, pathology, climatology, and land utilization. The first semester started September 19, and anyone interested should write to the Dean of the Graduate School regarding entrance requirements.



Courtesy Penna. Dept. of Forests and Waters.

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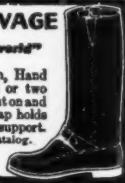
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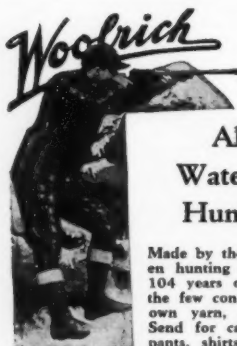
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**PRESIDENT ROOSEVELT TO REQUEST
CONTINUATION OF THE CIVILIAN
CONSERVATION CORPS**

**Fechner's Report Shows Forestry Program Greatly
Advanced by Work**

President Roosevelt, on October 6, made known his intentions to ask Congress to continue indefinitely, perhaps permanently, the activities of the Civilian Conservation Corps.

In a letter to Robert Fechner, director of Emergency Conservation Work, the President said: "This kind of work must go on. I believe that the nation feels that the work of these young men is so thoroughly justified and, in addition, the benefits to the men themselves are so clear that the actual cost will be met without much opposition or much complaint."

Those close to the Administration interpreted this to mean that the President not only will seek to have the present C.C.C. extended by the next session of Congress, but that he envisages large-scale forestry work as a permanent function of the Government.

This is borne out in Mr. Fechner's recent report to the President covering the eighteen months of the C.C.C.'s life, in which it was stated that the emergency conservation work has advanced the nation's forestry program from five to fifteen years.

Mr. Fechner pictured a record-breaking work program embracing forest improvement and protection, park improvement and development, soil erosion and flood control and livestock range improvement. Approximately 5,000,000 acres, he said, have been purchased with emergency funds and added to the National Forests of the country and 67,000 acres to the National Parks. Nearly 18,000 forestry and technical experts have been employed.

Up to September first, the C. C. C. had provided work for 850,000 young men, war veterans, and Indians, the report stated. The cost of the project to that date was placed at \$443,000,000—about \$522.50 per enrolled member. Of this amount the enrolled men received \$136,000,000, a good part of which—\$113,000,000—was sent to their families. The cost of supplies, materials, and services amounted to \$256,000,000 the report stated.

With camps located in every state, Mr. Fechner placed the authorized enrolled strength of the Corps for the third period, which ended September 30, at 369,838. On October first, however, the War Department began the task of enrolling 100,000 new men to fill vacancies caused by discharges at the expiration of the third six-month period. During the new, or fourth, period, the aggregate strength of the camps will be approximately 290,000 young men, 70,000 war veterans, and 10,000 Indians. The men will be housed this winter in approximately 1,700 camps located in every state.

"The forestry work already done has advanced the nation's forest program from five to fifteen years," said Mr. Fechner, "strengthening the forest fire protection system over millions of acres, making the forests more secure against the attacks of the White Pine

Blister Rust and other diseases, furthering the preservation of forest cover on watersheds, advancing the national soil erosion prevention program, and improving large forest acreages by thinning out undesirable trees. Outstanding results have been obtained in the development of new state park recreational areas, and the improvement of National Parks and Monuments. Tree planting on denuded areas has progressed. Gains have been registered in the development of wildlife protection, in water conservation and the improvement of live-stock ranges."

Among major accomplishments reported by Mr. Fechner as of August 1 are the following:

Construction of 34,570 miles of truck trails through the forests and parks to open up hitherto inaccessible areas and to strengthen the forest fire control system.

The opening up of 23,000 miles of fire breaks through timbered areas to assist in preventing the spread of forest fires.

The conduct of campaigns to eradicate or reduce the destructive activities of rodents over 7,000,000 acres, insects over 2,700,000 acres and tree-attacking diseases over 1,000,000 acres.

The planting of more than 150,000,000 trees on denuded forest areas or on lands endangered by soil erosion.

The development and improvement of more than 1,000,000 acres of forest lands by the removal of undesirable trees and other obstructions to forest growth.

The development of thousands of acres of new recreational areas in National Parks, State Parks and National Forests.

The construction of 609,000 check dams in gullies to check soil erosion and reduce losses caused by floods.

Important flood control work has been carried forward in the Winooski River section of Vermont where great property damage and loss of life occurred during the flood of 1927. The property damage at that time amounted to about \$13,500,000. This work is being done by war veteran companies under the supervision of the Chief of Engineers of the War Department.

Approximately 5,000,000 acres of timbered lands have been purchased with emergency funds and added to the National Forests administered by the United States Forest Service; 67,000 acres have been added to the National Parks and several hundred thousand acres of new state park lands have been acquired by the states. The Forest Service, with C. C. C. labor, is developing the new National Forest properties. The State Park division of the National Park Service, in cooperation with state authorities, is utilizing C. C. C. men to develop the new state park properties.

Clarke-McNary Inspection Work Divided Among Forest Regions

C. R. Tillotson has been appointed Assistant Regional Forester in Charge of States Relations Work for Region 7 of the Forest Service, with headquarters in Washington, D. C. Similar appointments for Regions 8 and 9 have been given Charles F. Evans and Albin G. Hamil with headquarters in Atlanta, Georgia and Milwaukee, Wisconsin, respectively. All Clarke-McNary cooperation in fire protection, distribution of planting stock, etc., with the States in each of the forest regions will be handled by these men.

Gordon T. Backus will have immediate supervision of the Middle Atlantic States of Region 7 and Crosby Hoar of the North-eastern States. W. R. Hine has been transferred to Atlanta, Georgia, to take immediate charge of Clarke-McNary work in the Carolinas, Tennessee, Georgia and Florida, while H. J. Eberly will remain in New Orleans in charge of the work in the Gulf States, Arkansas and Oklahoma. E. Murray Bruner is working with A. G. Hamil from the Milwaukee office of the Forest Service.

Indiana Expands Forestry Program With Emergency Funds

Indiana State Forester Ralph F. Wilcox reports additional forest land acquisition, new nurseries and increased forest protection as a result of Federal emergency relief allotments of the past year. These include three new forest fire towers erected on strategic points, giving the state fifteen steel towers from eighty to one hundred feet high, and a new State Forest donated by business men and farmers of Dubois County near Ferdinand, bringing the total area of State Forests to 25,000 acres.

Twelve Civilian Conservation Corps camps located on five State Forests and two game preserves were supplemented by twelve soil erosion camps established for work on privately owned lands. The men in these two groups of camps have completed 143 miles of forest roads and truck trails, twenty-seven bridges, cleared 8,000 acres along existing trails to serve as fire breaks, planted 1,179 acres to hardwood and coniferous trees and produced 1,500,000 board feet of lumber for developing the forest recreational uses, as by-products of improvement work on 3,772 acres of forest land. Nine dams to form large lakes for fishing and recreation were completed and more than 44,000 small erosion control dams were built on 602 farms. The total watershed area protected from erosion exceeds 14,000 acres on which, in addition to the engineering projects constructed, more than 8,000,000 black locust seedlings were planted.

Maryland Outdoor Life Convention to Hold Meeting in Baltimore

The state-wide Maryland Outdoor Life Convention, the first of its kind ever to be held in the State of Maryland and what is hoped to be one of the annual highlights of Maryland's conservation and outdoor life activities, is to take place on November 21 and 22 at the Emerson Hotel, Baltimore.

The purpose of the convention is to concentrate all of the efforts and strength of each of the sponsoring societies, including civic, scientific, outdoor and conservation thought in order that the development and preservation of all of Maryland's great outdoor resources may be fully appreciated and carried forward. Outstanding speakers of local and national reputation will address the convention on subjects in which every lover of Maryland's great outdoors will be interested, whether he be a conservationist, scientist, angler or simply one who desires to enjoy to a greater degree the privileges of outdoor life Maryland has to offer.

SAPLING SAM RETURNS



Forest Practice

"Only God can make a tree, but it took a Roosevelt to make a tree belt."—*The Hutchinson, Kansas, Herald.*

Highway Bugs

It wasn't liquor that killed old Ben,
Nor women that stopped his breath,
'Twas an Austin somebody drove up his leg
And tickled old Ben to death.
—*Rammer-Jammer.*

The Reason Why

Tourist (in Yellowstone Park): "Those Indians have a blood-curdling yell."
Guide: "Yes, ma'am; every one of 'em is a college graduate!"—*Christian Leader.*

Except—

This is National Park Year, except in front of fire-plugs, shipping-entrances, and the customary restricted areas.—*Detroit News.*

When A Man's A Man

The Sheik: Through the Sahara's worst sandstorm I have come to thee, Nellie.
The Sheikess: Aye, Rolly, surely thou must be a man of grit.

Crossing Her Fingers

"I shall miss you while you are on your hunting trip, dear," said the young wife affectionately, "and I shall pray that the hunters you are going with will do the same."
—*Laughs.*

"What's in a Name?"

The rabbit would be a ferocious animal if the furriers called him the same names in life that they apply to him in death.
—*Norfolk Virginian-Pilot.*

NRA Dog

I paid a hundred dollars for that dog.
He's part collie and part bull?
Which part is bull?
That part about the hundred dollars.
—*Texas Contractor.*

Surplus

Little Boy: "Well, mama, if God gives us our daily bread, the stork brings the babies and Santa Claus brings the presents, what's the use of having Papa hang around?"
—*Texas Contractor.*

Mark or Marksmen

News of the open season in Washington, from the *Renton Gazette*.
The Renton Gun Club will hold another shoot this Sunday at their traps on Smithers Field. The shooting will start about 9 o'clock and will continue as long as anyone is left to shoot.—*Kablegram.*

Relatively Speaking—

Houchin also killed a doe on his hunting trip. He was accompanied by Paul Smith, who bagged a doe and a buck, and by Mrs. Bob Smith, mother of the latter.
—*Prescott (Ariz.) paper.*

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WHY do so many guides prefer a Winchester Rifle? Why is it that the great majority of them are found using the same type of Winchester—with Model 94 lever action or its development in a later model? Says Pete Nelson, veteran guide on the upper Ottawa, in Western Quebec: "Try a guide's job. He shoots last and shows how. That takes shooting."

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Special laboratories for instruction in wood technology, in pulp and paper-making, in kiln-drying and timber-treating and a portable sawmill are other features of this institution.

Catalog Mailed on Request

SAMUEL N. SPRING, Dean

Georgia Forestry Association Opposes Forest Service Transfer

Stating that "as long as the greater part of timberlands are held by farmers and are not federal land domain, it logically follows that the United States Department of Agriculture with its established avenues of contact with farmers is the logical agency to handle forestry," the Executive Committee of the Georgia Forestry Association, at a meeting held on September 14, unanimously declared that forestry work remain with the United States Department of Agriculture rather than be incorporated with the United States Department of the Interior.

The same meeting, as reported by President T. G. Woolford of Atlanta, Georgia, passed a resolution re-affirming the Association's approval of federal forest purchases in the mountains of north Georgia for watershed control, and of the Okefenokee Swamp area, but opposed any extension of federal or state ownership of forest lands for commercial development, and urged that additional land purchase areas within the state be limited to those needed for research and demonstration purposes.

The Executive Committee also urged an increase in the allotment of Civilian Conservation Corps camps in Georgia that the vast acreage of privately owned land may be more adequately protected, and requested the Department of the Interior to consider and cooperate with the Georgia State Department of Forestry and Geological Development in plans for acquiring land for wayside parks.

Dern Announces Forest Purchases at West Virginia Forest Festival

Reviewing the National Forest purchase achievements since President Roosevelt allotted \$20,000,000 of Emergency Conservation Work funds in June, 1933, Secretary of War George H. Dern addressing the fifth annual Forest Festival at Elkins, West Virginia, on October 6, said, "The President has now decided to allot an additional \$10,000,000 for the same purpose, so that by next June the federal program of forest land acquisition in the eastern half of the United States will have attained proportions that would not have been attained in a decade or more had it not been for President Roosevelt's action."

During the past sixteen months, according to Secretary Dern, 4,892,804 acres of land have been approved for purchase and all but \$6,000,000 of the original allotment has been expended. This brings the total area approved for purchase since the passage of the Weeks Act on March 1, 1911, to 9,592,277 acres located in twenty-three States east of the Great Plains and distributed among sixty-nine forest purchase units."

With the West Virginia forest program in mind, Secretary Dern told the Forest Festival audience that the surrounding Monongahela National Forest purchase unit, established more than a score of years ago with a gross area of 1,717,000 acres now has 608,350 acres actually approved for purchase. Eventually an additional 770,000 acres will be acquired, bringing federally owned land in the forest to at least 1,378,000 acres. The remaining 400,000 acres of private holdings will be interspersed among the federal property and so coordinated as to profit by the federal plans of management.

The Secretary of War referred to his ex-officio position as Chairman of the National Forest Reservation Commission as highly logical, for the War Department has respon-

sibility for protecting the navigability of all interstate streams, and to assure abundant supplies of all materials required for national defense. Wood is vitally necessary to military operation. "One of the most effective ways of stabilizing stream flow and minimizing the sedimentation of navigable channels," continued the Secretary, "is to maintain adequate forest cover on the headwaters of such streams."

This fifth Mountain State Forest Festival was attended by nearly a thousand people from all parts of West Virginia as well as by conservation leaders from neighboring states. The three day program, which continued through October 4, 5 and 6, featured the crowning of the queen, who this year was Miss Garnette Northcott of Huntington, West Virginia. Addresses were made by Chief Forester F. A. Silcox and State Forester H. W. Shawhan. Among the contests on the program was one of wood chopping and another to pick the champion muzzle-loading rifle shot, who by the rules of the game could not be less than sixty years of age.

Emergency Funds Construct Forest Highways

Construction of about 7,000 miles of new forest highways, trails and fire breaks in National Forests has been completed during the past year under a special P.W.A. program in cooperation with the Department of Agriculture. This work has been done from a fund of \$41,067,745.

On September fourteen 3,428 miles of forest truck trails and 2,296 miles of horse and foot trails had been built. More than 1,500 miles of fire breaks, covering nearly 24,000 acres, had been completed in parks and forests as well as 443 lookout towers and fire observatories. The stringing of 3,384 miles of telephone wires was completed.

In addition to this 919 structures of various kinds, ranging in cost from \$500 to \$2,500, have been built in National Forests.

White pine blister rust control, for which there was a \$15,967,000 allotment, covered 397,009 acres; insect control, 337,580 acres; timber stand improvement, 258,730 acres, and rodent control, 5,336,895 acres.

Topographical surveys of National Forests under the General Land Office were made of 27,372,893 acres together with range surveys of 13,430,924 acres and boundary surveys of 1,986 miles.

McConnell Succeeds Jackson as Kentucky State Forester

K. D. McConnell, a Biltmore Forest School graduate with wide experience in southern forests and recently in charge of the purchase of wood materials for the Kentucky State Highway Department, was appointed State Forester by Governor Ruby Lafon on October 1 to succeed W. E. Jackson, Jr. Mr. Jackson's term of appointment expired on July 1, 1934, after a service of a little over four years.

State Forester McConnell will continue the cooperative forest protection work which received \$8,100 of Clarke-McNary funds during the past fiscal year. In addition, he will maintain the forest nursery, for which \$1,500 of Clarke-McNary funds were contributed, and cooperate with the United States Forest Service in supervising the forest cultural work on sixteen Civilian Conservation Corps camps working on State Forest lands. These Federal allotments were met by over \$10,000 of State appropriations.



Forestry Questions Submitted to The American Forestry Association, 1713 K St., N. W., Washington, D. C., will be Answered in this Column. . . . A self-Addressed Stamped Envelope Accompanying Your Letter will Assure a Reply.

* * *

QUESTION: How does the forest of the United States compare with that of Canada and what proportion is privately owned?—C. P. W., New Jersey.

ANSWER: The commercial forest land area of the continental United States consists of about 495 million acres, or one-fourth of the land area, exclusive of Alaska. More than one-half is industrially owned, one-fourth is in farm woodland and about one-fifth is in public ownership, of which the bulk is owned or managed by the Federal Government.

The Forest area of Canada is about 740 million acres, which represents nearly one-third of the total land areas. Nine-tenths of the forest land is owned by the Dominion of Canada or by Provincial Governments and only one-tenth is privately owned.

QUESTION: Please send me information concerning what is being done about forestry in the State of Illinois, who is the State Forester, and State laws affecting forests.—D. G., Illinois.

ANSWER: Illinois has laws creating the office of State Forester in the Department of Conservation, permitting the creation of State Forests, the cooperative protection of State and privately owned forests, and the growing and distribution of forest planting stock to citizens in the State. Robert B. Miller is State Forester, serving under C. S. Thompson, Director of the Department of Conservation at Springfield, Illinois. There are over twenty State Parks and Forests scattered over the State but none of any great size.

The State laws affecting forests can be secured by addressing Director C. S. Thompson, of the Department of Conservation. That department and the Division of the Natural History Survey, Department of Registration and Education, Urbana, Illinois, have a number of bulletins describing the forests and the individual trees.

The Third Report on the Forest Survey of Illinois, published by the Natural History Survey, states that the forested area of Illinois is 3,021,650 acres, slightly larger than the area of similar land in England. In 1926 the Report stated that Illinois farm woodlands were decreasing at the rate of 4,500 acres a year and the unimproved and waste lands on farms increasing at the rate of 25,000 acres a year. Very little planting is being done.

During the past year the Federal Government has established purchase areas in the Southern extremity of the State with the intention of eventually acquiring land and developing one or possibly two National Forests in that region.

Christmas Tree Shipments Modified

Revision of the gypsy and brown-tail moth quarantine regulations has modified the areas from which Christmas trees may be shipped interstate from Connecticut, Maine, Vermont, and New Hampshire, according to a recent announcement by Secretary of Agriculture Wallace. Some areas were added to the restricted zone, whereas other areas were released.

A portion of northern Vermont, including Orleans County and parts of Essex, Lamoille and Addison counties, was released completely from any restriction on account of the gypsy moth. In other sections of northern New England, however, the increasing intensity of gypsy moth damage necessitated the extension of the areas designated as generally infested to parts of Oxford, Androscoggin, Kennebec, Lincoln, Knox, Waldo and Hancock counties in Maine; parts of Carroll and Grafton counties in New Hampshire, and two townships of Windsor County in Vermont. Similarly, three townships of New London County, Connecticut, were added to the generally infested area. Heretofore, all these sections have been in the so-called lightly infested area, from which forest-grown Christmas trees could be shipped interstate under inspection and certification.

The quarantine forbids the shipment of forest-grown Christmas trees from the areas generally infested with the gypsy moth, because it is impractical to inspect such trees if they have been grown under conditions of heavy infestation. However, trees from these areas may be shipped interstate if they have been grown in a cultivated nursery and are certified under the nursery stock requirements.


The revisions, which became effective October 2, also bring the quarantine up to date in listing certain areas in Maine, New Hampshire and Vermont known to be infested with the brown-tail moth, which has spread northward and westward in recent years.

New Hampshire County Holds The American Forestry Association Plaque

The American Forestry Association plaque mounted on black walnut has been permanently conferred upon Rockingham County Extension Service with headquarters at Exeter, New Hampshire, for the continuously successful forestry work of the 4-H forestry club members of that county. The plaque has been won by a Rockingham County club three times. The Woodpeckers Club of Auburn, New Hampshire, which won the plaque this year for the second time has been doing outstanding forestry work for the past seven years. During that time the boys of the club have planted 27,500 forest trees and improved 33 acres of young white pine. The Greenwood Club of West Epping was the champion forestry club in 1932, thereby helping to gain permanent possession of the plaque for the county organization.

Warren Kolb, of Fremont, who won the individual medal for outstanding work done during the past year, has improved twenty acres of woodland during the four years of his forestry club work. Kolb did this work on a neighbor's land as he has only one acre of his own. His one acre is now covered with white pine that he set out a few years ago. He is now leading a forestry club of younger boys, and is a senior in high school. Next year he will enter the University of New Hampshire to study forestry.

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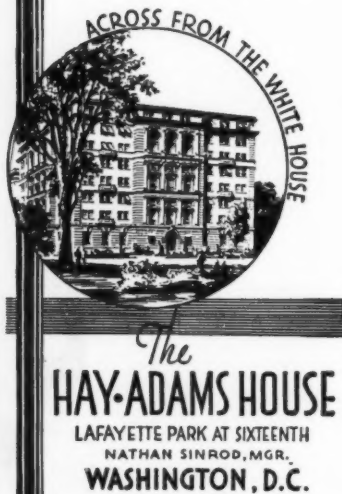
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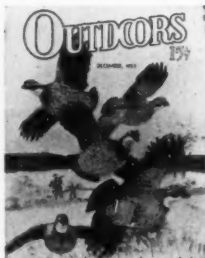
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Tree Week in 1935

The first week of April 1935 has been proclaimed Tercentenary Tree Week by the Committee of the National Education Association planning the celebration of three hundred years of American schools.

Schools throughout the country are being urged to arrange special ceremonies and plant trees during this week on grounds of high schools and other public places. Plans are under way to secure the cooperation of State Foresters, Extension Foresters and the United States Forest Service.

Millions of Trees Distributed for Farm Planting

Over twenty million tree seedlings were distributed to farmers last year for woodland and shelterbelt planting, the United States Forest Service reports. The plantings, which centered in thirty-eight States and two territories, were primarily for timber and pulpwood production in the East and South, and for shelterbelts and windbreaks in the Middle West, the plains and western States.

These trees, which are furnished at nominal charge for forest and shelterbelt purposes only, were distributed from State nurseries by the State forestry departments cooperating with the United States Forest Service under the tree production section of the Clarke-McNary forestry law.

Pennsylvania led with a distribution of 4,500,000 trees, and was closely followed by New York. Puerto Rico exceeded 2,000,000 trees distributed for farm planting, and Ohio exceeded 1,000,000. Tennessee, Georgia, Indiana and Nebraska each passed the 800,000 mark.

The red pine was the favorite timber tree, according to the report, with more than 4,000,000 distributed for planting. Norway spruce ranked next in demand, with 3,000,000 seedlings distributed, and white pine followed with 2,500,000. Native trees which figured in the shelterbelt plantings were the green ash, cottonwood, willow, box elder, American elm, cedar and pine. Of the imported species used for shelterbelts, the Chinese elm topped the list with 410,000 seedlings distributed.

The total number of seedlings distributed shows a slight decrease from 1932.

California Clears Highways of Billboards

Nine hundred of the four thousand unlicensed commercial billboards and signs along California highways were removed by the State Department of Public Works during early October under authority of a new state law requiring license fees on all such structures ranging from fifty cents to \$1.00 a year. Remaining billboards will be torn down as rapidly as possible during the fall and winter.

Millions Spent for Fishing

Sport fishermen of the United States spent approximately \$115,295,370 during 1933 according to Commissioner Frank T. Bell of the Bureau of Fisheries. This represents an average of \$12.14 for each fisherman and was expended for licenses, tackle, transportation, guides, boat hire, equipment and lodgings. About \$6,775,370 were spent for fishing licenses alone. Commissioner Bell estimates that the amount spent for fishing tackle was well over \$46,000,000, of which probably forty per cent went directly into the wages of employees.

American Civic Association

Discusses National and State Plans

National and State plans for land use and civic development were discussed by nationally recognized leaders at the thirtieth annual conference of the American Civic Association in St. Louis, Missouri, on October 22 to 25, inclusive. Frederick A. Delano, President of the American Civic Association and Chairman of the National Resources Board, arranged a meeting of the Board's Advisory Committee in connection with the conference. This brought to St. Louis, in addition to the Chairman, Dr. Charles E. Merriam and Dr. Wesley C. Mitchell, together with Charles W. Eliot, 2nd., Executive Officer of the National Resources Board. Addresses were also scheduled by Secretary Wallace and Assistant Secretary M. L. Wilson, of the Department of Agriculture, Dr. L. C. Gray, Chief of the Division of Land Economics and Director of the Land Use Section of the National Resources Board, and President Francis D. Farrell of the Kansas State College of Agriculture.

Delaware Acquires State Forest

Title to 1,133 acres of forest land situated near Redden, Sussex County, Delaware, was acquired by the Delaware State Forestry Department early in September according to an announcement by State Forester W. S. Taber. A Civilian Conservation Corps camp will be located on the tract to carry out forest improvements. On the new State Forest and adjoining lands, road and fire trail construction, forest stand improvement, tree planting and the installation of public camping facilities are included in the plans for the work. This brings the total acreage of State Forest lands in Delaware to nearly 1200 acres, and is part of the program to acquire at least 50,000 acres of the 380,000 acres of absolute forest lands for administration as State Forests, parks, game refuges, or public hunting and fishing grounds.

Large Chestnut Trees Located in Eastern Pennsylvania

What are believed to be some of the largest living native chestnut trees in eastern Pennsylvania were recently located in the Tuscarora State Forest, Perry County, according to the Department of Forests and Waters, at Harrisburg. N. W. Logue, forester at an E.C.W. camp near Leroy Germantown, and Forest Ranger Leroy Koontz located the trees, the largest of which is seventeen inches in diameter. Although showing evidence of blight, the chestnuts, except for dead branches, appeared to be resisting the disease.

A number of living chestnut trees have been found during the past summer by foremen of C.C.C. crews engaged in making stock surveys in the State Forests. A few of them have crops of chestnut burs.

For reasons for which State forestry officials had no explanation, the chestnut growth in the North Mountains, bordering the Cumberland Valley, apparently were resisting the bark disease to a greater extent than those growing in the South Mountains across the valley.

Idaho Names Park for Allison W. Laird

Approximately eighty acres in the St. Joe National Forest on the Upper Palouse River in Latah County, Idaho, have been presented by the Potlatch Forests, Inc., to the United States to be used for recreation purposes and to be named in honor of Allison W. Laird, former manager of the Potlatch Lumber Company of Coeur d'Alene, Idaho. The tract, which includes such native northern Idaho trees as western white pine, ponderosa pine, black pine, white fir, red fir, tamarack, cedar, spruce, and yew, will be developed for camping and picknicking purposes.

In accepting the gift for the Government, Regional Forester Evan W. Kelly announced that a suitable monument will be erected within the area and that the Forest Service will start work this spring to remove dead and dying timber, to fence the land against

stock, and to install such camp equipment as fire places, tables and benches.

Selected Christmas Trees Available From National Forests

Christmas trees bearing tags showing that they were cut from National Forests in accordance with approved principles of conservation will be available through regular commercial channels in many parts of the country during the coming Christmas season. The removal of these trees will encourage the growth of remaining trees and will furnish a desirable source of income. They may be of spruce, fir, Douglas fir or even pine and will have been cut from some fifty National Forests located across the continent. The idea of certified Christmas trees is an outgrowth of a Christmas tree program started some years ago on the Colorado National Forests. This met with such general approval that it is being widely taken up.

PROS AND CONS OF THE SHELTERBELT

(Continued from page 529)

or above normal years of rainfall to bring it back.

"On the whole, in my opinion, after living in North Dakota for nearly twenty years and working in South Dakota, Wyoming and Montana, I would say the project is not alone feasible but will result in much good."

Another man whose experience in tree planting in the prairie states gives weight to his judgment is Charles A. Scott, Secretary of the Kansas State Horticultural Society. Mr. Scott's experience dates back over a period of thirty years, beginning in 1905 when he was supervisor of the Nebraska National Forest, and was largely instrumental in developing successful methods of tree planting at the government nursery at Halsey, Nebraska.

"I am entirely familiar with the country to be traversed by this proposed shelterbelt. The project, in my judgment, is entirely practical, and if carried out will result in untold value to the agricultural interests of the region.

"I believe I have read nearly all the adverse criticism that has been printed. The foundation for much of it is due to a lack of knowledge of trees; of the conditions of the region to be traversed by the shelterbelt or pure political prejudice or both.

"I am fully aware that there are many handicaps to be overcome in the successful prosecution of this project. However, praiseworthy projects have never been accomplished without opposition, criticism, or conquering difficulties."

Dean W. W. Burr of the University of Nebraska, however, is somewhat less sweeping in his endorsement of the undertaking. "My acquaintance with the Plains would lead me

to feel that there are sections where tree planting on any large scale is not advisable," he states.

"Doubtless the idea will be to have men in charge who understand these various factors. The planting of trees for wind protection and home beautification has always been a part of Nebraska's development program, and is still a major project in our extension service here at the college. This type of work has been very well received by the farmers of the state, and I believe they will take kindly to the shelterbelt idea if they feel that it is in the hands of those who know local conditions and proper varieties and methods. I will doubt the advisability of extensive plantings on the better agricultural lands of our state. Even on this class of land a strip for windbreak might be feasible. Aside from the actual economic value, growing trees make living conditions more attractive.

"As to the effect upon crop production. We have many times noted that in the case of hot winds a windbreak has a beneficial effect. We have seen corn burned out over most of the field, while behind a grove or an abrupt hill there might be fair corn. As for diminishing drought by increasing rainfall, I doubt if it would have any such effect. The natural forces that determine rainfall probably would not be materially changed by any efforts a man would make."

From Colorado, E. P. Sandsten, Dean of the Agricultural Experiment Station, State Agricultural College, Fort Collins, makes this comment:

"In Colorado we are interested in tree plantings on the Plains, but as I see it, it should be based on local needs and local con-

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ditions. On a small scale it would be possible to give the trees the required amount of care during the first few years after planting. Also, they would receive the owners' or farmers' attention under supervision. A large undertaking like that proposed by the Government will encounter tremendous difficulties, as in some areas it would be impossible to grow the trees without supplying the needed moisture. In other cases the soil would be such that growth would be almost prohibitive.

"Personally I feel that State projects of tree planting with Federal aid would be more practical and undoubtedly more beneficial to the states. Local interest would be much greater and the cost would be small in comparison with this large project of the Government. If such a national project is undertaken, it will take years to grow the necessary plant materials and have them grown under conditions that approach those under which the trees are to grow permanently. As to the benefit, I believe there are arguments pro and con. Personally I believe that sooner or later it would be a disappointment.

"It is difficult for eastern people to realize the actual conditions in the Plains area, and the picture that enthusiasts vision may never be realized. While the meteorological data may give some information as to rainfall, wind and temperature, they do not answer the question of distribution and local peculiarities over so large an area. Of the millions of trees that have been distributed to the Plains in Colorado alone, only a small percentage is left. Of course some of this mortality could have been reduced by closer supervision, which the state has not been able to furnish, and our plains planting therefore has not been a success except in a few cases where the farmer has become interested in trees and has taken care of them."

For fifteen years, from 1915 to 1930, Mr. Robert Wilson of San Fernando, California, was in charge of tree planting investigations by the Bureau of Plant Industry at Mandan, North Dakota. Important in these investigations was the cooperative shelterbelt demonstration under which two thousand shelterbelt plantings were successfully made in Montana, Wyoming, North and South Dakota. Speaking from his experience in this work Mr. Wilson states:

"Under Great Plains conditions, trees have a fair chance of success only when planted in moist soil that is free from grass and weeds. The best tillage method to put land in this condition is summer fallow. Land on which a shelterbelt is to be planted should, therefore, be summer fallowed the year before the trees are to be set out. If land is in sod it may take two years of summer fallow to put it in suitable condition. Unless there is an unusually wet fall and spring throughout the region of the proposed shelterbelt, I should not expect to find many planting sites in proper condition for setting out trees in the spring of 1935. A start can be made in 1936, but it will probably be 1937 before the planting operation can be expected to have made a real beginning.

"The climatic conditions in the area of the proposed National shelterbelt are not especially adapted to the production of nursery stock. Commercial nurseries and possible sites for the location of government nurseries in the area east of the planting site might be the best source from which to obtain the large quantity of trees needed for the initial planting. To this end planting stock should be well grown and carefully graded. Replanting of missing trees should be completed the second year if possible.

"Tree plantings in the plains region will not attain the size or age that the same species will in regions of greater rainfall. The useful life of many of these plantings will probably not exceed from thirty to forty years. Some provision may eventually be needed to provide for the replacement of belts that show signs of wearing out.

"In conclusion, I venture the opinion that the 'National Shelterbelt' from a technical standpoint can be established essentially along the lines proposed. Some permanent government agency will be required to establish and maintain the protective belt. The general benefits that may be expected to follow the creation of such a planting of trees are both economically and socially valuable. Foresters and the general public should welcome the present opportunity for carrying out this project or at least some part of it."

The following comment is from Mr. A. B. Conner, Director, Texas Agricultural Experiment Station, Agricultural and Mechanical College of Texas: "I am of the opinion that the growing of trees in the region is very desirable and that this can best be done by encouraging individual farm plantings throughout the Great Plains Region, not confining it to any particular strip or belt and leaving the responsibility and cost of cultivating, caring for, and irrigating these farmstead plantings to the owner of the land.

"A great deal has already been accomplished in northwest Texas, around Lubbock and elsewhere, as will be evidenced by a visit to that section, in the matter of tree planting around farmsteads. This work has been encouraged by the Experiment Station and county agents, and great impetus could be given to it by lending encouragement to farmers, not necessarily by donating funds outright or by taking out of their hands the cultivation and care of these trees, but by supplying them with trees of the right varieties at a minimum cost, or even at no cost, and by otherwise encouraging plantings wherever feasible throughout the region."

Mr. C. P. Blackwell, Dean and Director of the Oklahoma Agricultural and Mechanical College, Stillwater, expresses opposition to the project as set up but believes it would have real merit if modified so as to confine planting to those areas which give promise of actual success. "It would be entirely impractical," he declares, "to plant trees along every section line without regard to character of soil, moisture conditions, alkalinity, and other similar factors. This would be so completely doomed to failure before the project was started that I believe it would prove not only a waste of public funds but it would bring forestry work in this section of the country into a very great disrepute with the public and would be such a setback to normal forestry development that the country could not soon recover.

"We know that there are certain soils in this state and adjoining territories which are very high in alkaline. We have already had sufficient experimentation to know that trees will not grow on these soils in their present conditions. There are other soils that are too dry and without subsoil where even grasses will not grow. The planting of trees on such soils would be extremely foolish.

"If on the other hand the program is modified so that an analysis is made of the soils and the kind of trees that could be grown on it successfully, the trees to be planted only where they have a chance of success and where they would fit in properly with the farming system and be a protection to the land against erosion, I would be very sympathetic to a program of this kind."

THE HEALTH OF JOHN PEAVEY

(Continued from page 511)

fair comparison," he said. "The C.C.C. represents an age group from eighteen to twenty-five years. National figures include all age groups."

"But wouldn't the 50,000 veterans with an average age of forty-odd, and the local experience men who are often above the specified age limit tend to make up the difference?"

"Partially," the doctor replied, "but not enough. Your age group is still predominantly of men between eighteen and twenty-five. Not only that, but all men entering the C.C.C. passed a thorough physical examination before admission. They were encouraged to report for treatment for every trivial accident or illness. Special medical care was provided, with a physician usually in each camp, and hospital facilities were available in case of need. More than ordinary effort was made to prevent the spread of communicable diseases. The average man doesn't have all these advantages."

"But still, doctor," I insisted, "don't you think they are significant figures?"

Yes, the doctor said, he thought they were, but he had been talking with Johnny about sports, and had things of his own to say. He launched into a panegyric on the ingenuity of the boy pioneers of the present day. "They are issued hard and soft baseball equipment, basketball, football and volley ball outfits, horseshoes, a twelve-pound shot, a hammer, and a discus. But they must provide their own hurdles, stands for basketball baskets, football goal posts, baseball backstops, and all accessory equipment. They do it! No sport known to any member of the camp but is played in its season."

Again, like a thread connecting all I could find out about the C.C.C., was the same aliveness that characterizes John Peavey. So it was not strange, considering that I myself have a hobby, that I should question Johnny about hobbies in the C.C.C.

He laughed. "Hobbies? There are more hobbies in a C.C.C. camp than there are boys, almost. One fellow who knew something about landscape work gathered a following and began to dress up the camp. You'd be surprised at the results, too. Rustic benches, a rock garden, native shrubs and flowers planted, and a neatness and trimness about the place generally. Two or three boys spent most of their spare time in winter putting up bird houses; they were the ones who organized Sunday bird walks in spring, and knew about everything that flies. We had butterfly hunters, botanizers, geologists, biologists, tamers of pets, stamp collectors, rock collectors, fishermen—everything. And of course a great many of the fellows had a yen for camp-talent entertainment. There was a drama group, and an assortment of musicians. They got together and made a natural glen into an outdoor amphitheater. They dedicated it by putting on a show and inviting the people from the surrounding country. Then the community talent brought a show out for us, and by the time I left the community and the camp had pooled their talent and they were putting on some great shows together."

"There was a Syrian boy in camp at Indian Trail Park, Missouri, who made a hobby of photography. He turned in a good many pennies by taking pictures of the boys to send home and to their sweethearts. Then when the big shots of the state and federal governments visited the camp he took pictures and sold them to the newspapers. When he left

camp he went right into the news photography game.

"There are lots of stories about camp hobbies that turned into money. You know, the barbers and shoemakers and sign painters with a little experience developed themselves in camp, picking up a little change on the side, and were able to go into shops on pay when they got back home."

"What's your hobby, John?"

"Mine? Well, I didn't have any before I went to camp. You know, not a real one. Then I got started in a funny sort of way. We were making a cut through a hill for a new road, and dug into some queer objects about the size of pecans. The foreman said they were fossil pecans, and maybe a million years old. Several of us picked up these fossils. Well, a geologist from the State Geological Survey got interested and came out. He examined the 'pecans' and said they were spores of giant prehistoric ferns, and hundreds of millions of years old."

"That got me started off on geology. One of the camp instructors was a geology man, and he took a special interest in me. We took long hikes, studying the rocks. He said a person ought to be allowed to follow his educational interest, and if he went far enough in it he would learn something from every field of knowledge; I didn't know what he meant at the time, but the more I think about it the more I believe he was right. So I'm getting a job soon, and I'm going on to college to study geology. . . . Get a job? Sure I can get a job. I feel swell ever since I went to camp, and besides I'm interested in something now, and I'd like to see anybody stop me from finding out about it!"

The next time I saw the doctor I advanced my thesis that hobbies are closely related to health. He nodded his head slowly, pleased with the thought, then more decisively. "Yes," he said, "you might call it personality therapeutics. It has its value in mental hygiene. That is even true of the sedentary hobbies, stamp collecting, reading, study. And, thinking further, if taken statistically, I am sure that outlet for energy in hobbies would reduce many accident and disease rates, more particularly those dealing with the search for 'a good time.' Automobile accidents, etc."

"I am coming to think," I told the doctor, "that health is only an approach to a comprehension of the C.C.C. program. Young Johnny has been giving us an education under the head of 'Health in the Civilian Conservation Corps.' We start out with health and find it in every phase of the C.C.C. And now we are saying, 'It is all health.' I believe Johnny would say right now, 'It's all education,' and someone with a more patriotic point of view would be apt to say, 'It's all citizenship.'"

"But what is the end-point of education and citizenship?" Dr. Medica asked quickly. "Is it not individual and collective health for the nation? Here is an instance: Johnny is a city boy. He goes to the country, and comes back now to report that country people aren't at all the hicks he thought they were. He liked them. Ergo, they liked him. So I'll venture to say that a lot of those mountain people are feeling that city boys are just like any other boys. What it comes to is reciprocal education between city and country. Or, if you prefer, it is an improvement in citizenship as realized by better relations between one part of the country and another. Personally, I like to call it better national health."

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A FORESTRY EXCURSION INTO CENTRAL EUROPE

(Continued from page 517)

piled thinnings and prunings, these deferential disciplined workers, this suppression of waste are impressive. The ordered German forests humbled us. But Germany has only one-tenth as much forest land in proportion to population as we have, and many of the German forests are within an ox-drawn wagon haul of the markets for their products.

While it must be remembered that wood growing and not lumber manufacture is the business of private forests in Germany, we visited a small sawmill near Flinsbad with two frames of gang saws, where we found that sawmill wages run from 75 to 100 marks per month. (That is about \$30 to \$40, which is from 40 to 60 per cent of the equivalent rates of pay in the United States.) Both men and women worked in this mill—women receiving, as is common, about 80 per cent as much as the men. Common laborers' wages were around 80c to \$1.00 a day. The employment of sawmill workers was reported to be fairly steady as a rule, the workers being shifted back and forth between farm and forest work, but all usually living on the estate.

That reminds an American of the possibilities, as we head toward sustained yield forest practice, of making our forest properties of double utility—serving both agricultural and forest functions. The subsistence homestead is peculiarly adapted to employees of the forest industries and will, I think, ultimately find a large place in our forest economy.

Between our forest visitings, we saw on August 11 the famous Forstliche Hochschule at Tharandt, founded by Heinrich von Cotta in the first part of the 19th century. This beloved shrine of forestry has sent out 5,000 trained foresters since 1816, of whom 3,547 were German and 1,479 foreign. It is the oldest forest school in the world and Dr. Heske, as head of the institution, is in the direct succession from von Cotta. The school has a forest of 4,000 acres. Its first forest plan was laid out in 1811 and records of its progress have been kept for ten-year periods since then. The original forest of silver fir, spruce and beech was destroyed during the wars of the French Revolution. The new forest was of spruce, but has now been replaced by a mixed forest. However, there are beech trees here 300 years old. We found pine here with a stand of 42,000 board feet an acre, although the largest trees were only 20" in diameter. The school forest pays no taxes and gives an annual net yield in money of 35 marks per hectare—the lowest returns in recent years having been 18.85 marks in 1930, and the highest 75.37 marks in the war period of 1914-1918. Wages for the forest workers were 66 pfennigs (16 cents) an hour, and the working time 40 hours a week. This compares with 24 to 45 cents, and 40 hours in America.

The Scotch pine forests of Count Holnstein and Baron Vietinghoff, near Dresden, appealed to us because they showed what can be done with the poorest of sandy soils, particularly where forestry is integrated with agriculture. We made a special note here of what we also saw elsewhere, as illustrative of the intensive economy with which German forests are administered—that the peasants also in the aggregate, extensive forest land owners, rake up all the forest litter for bedding for livestock. We reminded ourselves

that these petty economies of operation are not possible in America; and, we hope, never will be. Much of the land in Count Holstein's forest was recovered from heather-covered sheep range during the 19th century. The production of mutton and wool being no longer profitable, Scotch pine was introduced. The gross revenues from the pine forests are given as about 52 marks per hectare (2.471 acres) with the expense 37 marks per hectare. It was interesting to note that the property tax on this forest was only four-tenths of 1 per cent, the rest of the taxation being income; and taxes as a whole were figured at only 15.5 per cent of the total annual expense. These cover property, community and sales taxes. But \$1.50 an acre net for tree production did not make us wild to plunge into such a business. Yet it showed steady and dependable results in what seemed marginal if not sub-marginal forest land.

Again, on the forest of Count von Arnim, at Bautzen, we were reminded of the German tradition of considering a forest as a tract of land to be devoted to the most suitable utilization. Count von Arnim has 60,000 acres on which are combined agriculture, forestry, mining, lumber and paper manufacturing, and tile manufacturing. There is one general manager for the whole forest, with assistants in charge of each of the principal divisions of utilization. Incidentally, mention should be made of the game resources of the forest, which are a source of appreciable income, also, I infer, a source of still more appreciable expense, in German forests generally. Here is said to be a hint to American forest owners: Sell hunting rights. The forest proper is operated, of course, on a sustained yield basis, and everything is done in accordance with a long-time working plan which is revised every ten years. A year is nothing in Germany—and the individual is no more. Time is measured by decades and centuries, and humanity *en masse* in the chosen terms of the Third Reich.

Crossing over into Czechoslovakia we first visited the 13,500-acre forest of Prince Hohenlohe-Langenburg. This comparatively small forest is most carefully managed. It is composed largely of spruce, some of the trees running up to a height of 140 feet and attaining a diameter of over 2 feet, with a stand, according to European computation, of over 80,000 board feet per acre. Here for the first time we encountered the results of the policy of the Czechoslovakian government of expropriating great estates. This princely estate suffered a reduction of 55 per cent through expropriation. In Bohemia we visited also the forests of Count Czernin, near Klattau, and those of Prince Schwarzenberg, near Budweis. This prince was allowed by special favor to retain 207,000 acres, most of which are in southern Bohemia. It was on his land at Bremerwald, near the Austrian border, that we saw the greatest stands of large timber encountered during the tour. In some parts of this forest we saw trees that reminded us of the virgin forests of America. The Schwarzenberg forests have been organized and operated for sustained yield management since 1852, and we found it highly interesting and instructive to examine all of the intensive working plans in use on each of the nine districts since the beginning of carefully planned forest management.

The results of governmental expropriation of forests in Bohemia are in line with our American conception of the superiorities of private management. The post-war government took the cream of the forests and those

which had been the best managed. Nevertheless, the Czech government is now losing five to six million dollars annually in the administration of properties which formerly returned satisfactory revenues to their owners. Bureaucracy in business finds no support in this Czechoslovakian experience in the past fifteen years.

I was impressed on this trip with the fact that the privately owned forests of Germany are not conducted on a money economy similar to ours. It is justifiable generalization to say that the managed forests of Europe do not aim at realizing a certain rate of return on a specified capital investment. The forests we visited were owned by noble families and generally had been in the same ownership for hundred of years. These families do not think of their forest estates in terms of capital. To them they are entrusted properties which, if large enough and well managed, realize a satisfactory income for the support of their owners, and of the humble people who live on the entailed forests. I can only with difficulty conceive of the United States permitting the custom of entailing land, whereby the hereditary proprietor in each generation possesses the income but not an alienable title. Nor do I envision in America the residual feudal relations of obligation and loyalty which still prevail in the great estates of Central Europe. Neither do I see any likelihood of transferring to this country a spirit of allegiance which prompts workers to share uncomplainingly the ups and downs of the "master."

What we saw convinces us that in forestry, as in other business, public ownership and operation are not the ultimate answer to the so-called "forest problem." And yet there was no convincing evidence that even the best European intensive private forest management would likely succeed generally in America. We must, I think, find a middle ground for ourselves. It is likely to be in an extension of government ownership of some forests, for the reason that business men cannot afford to manage them; and in a change of ownership's point of view, so that it will be satisfied with the actual income from the property without regard to some hypothetical rate of

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return on a capitalized anticipation. Our problem is not one which affords the sort of solution pleasing to the average American enterprise. It must be solved from the viewpoint of an age of smaller but more steady returns, and of considerable social differentiation from the past.

I do not mean that sustained yield management is practically out of the question in the United States and that our forest conservation code seeks the unattainable. But I do mean to say that in conducting a business of important public imports and consequences, the forest owners must have and will be justified in asking a measure of public partnership and cooperation which will equitably share the costs to the extent at least that forest conservation assumes the proportion and the recognized status of a quasi-public undertaking.

We set out for Europe in the very shadow of the sinister "purge" by the Nazi authorities in June, when there was prospect of armed strife over Austria, when there were grave misgivings following the death of President von Hindenburg. Germany was in a state of agitation and alarm. Old international enmities were stirring again and it was feared that travel might be unpleasant, if not dangerous, especially for Americans. We did not find it so. We were most kindly received and hospitably entertained everywhere. There was not the slightest expression of resentment against the practically universal rejection of

Nazi policies by American public opinion. We talked with public officials in high estate and low, with mechanics and peasants, with nobles and tradesmen. We were entertained by counts, barons and princes. All had humbled themselves in deep patriotism before the "totalitarian" state. Instead of resentment and indignation we found an almost pathetic desire that we should comprehend the economic plight of Central Europe and appreciate the necessity of the heroic measures to which these people have resorted, as they believe, to save themselves. One can only like the German people as he meets them in their homes and observes their many admirable social and economic qualities. But much as our German friends commanded our admiration and respect, we were saddened by the spectacle of a great people of common blood with us, deliberately, even though under the lash of economic and political necessity, abandoning the individual rights and liberties which have been won by centuries of struggle against the tyranny of the state and of despots. When we reflected on the apparently inevitable political, social, and, in a broad sense, public-moral, consequences of these present trends the thought could not be avoided that in their heroic reaching for economic security, the German people—schooled in economic efficiencies, scientific excellence and endless industry—may perhaps be paying after all too high a price. As to that only the perspective of history will say!

RECEDING GLACIERS

(Continued from page 514)

opposite side of Mount Rainier from the Nisqually and has a different exposure. This, together with the fact that it is the largest of the glaciers of the continental United States, were the reasons for its being chosen for future experiments. The fall of 1931 witnessed the placing of markers at the snouts

of two additional glaciers, the Carbon Glacier and the Tahoma Glacier. These are found on the mountain at points differing physically from both the Nisqually and the Emmons. Thus it is hoped that an idea can be obtained as to the relative melting of these ice masses on different sides of Mount Rainier.

BRIDGES OF THE WOODMONT

(Continued from page 524)

the Woodmont Club. The wild turkeys that survive the hunting season breed naturally in the idyllic woods of the preserve; so that the club restocks itself to the number of about 2,000 birds a year; in addition, Bridges raises some 2,000 more in the breeding-pens, about half of which are liberated some six weeks before the season opens. As would be expected, it is necessary to supply feed for so large a number of turkeys. This is afforded partly by the game fields; but game wardens range the preserve every day during the autumn and winter, scattering corn and wheat along the trails. Bridges himself delights to do this feeding; and he seldom enters the preserve without having his pockets full of corn. It is characteristic of him to wander along those primeval paths, with the sinewy silent step of a true woodsman, scattering grain to the turkeys that, knowing his generous habits, will soon be on his trail, hunting and never failing to find their dinner.

I asked him about the handling of the wild breeding stock when it first comes in. He said: "Some turkeys are too wild ever to be tamed. We have had old gobblers that would die rather than eat anything in captivity. The new stock rarely breeds the first year. We

cut one wing; and in the case of the gobblers, we leave four primary feathers (the long ones at the tip) to afford proper balance when mating. The stubs are shed in August, when new feathers will be grown. As the gobblers and hens that have their wings cut cannot fly to roost, we build roosting-shelters for them."

From the surplus stock that Bridges has raised, wild turkeys have been sold to Cuba, Japan, England, and to practically every State in the Union. Lured by feed into small wire pens constructed especially for the purpose, the capture of the wild birds is rather easily accomplished.

While Bridges specializes on turkeys, and while he has been eminently successful with the whitetail deer, other forms of wild game are not neglected. The Woodmont raises about a thousand mallards every year; as many quail; and some two thousand New-tant pheasants. The only game bird which shows no sign of a natural increase is the ruffed grouse. It is possible that they fly over the wire, or kill themselves against it. At any rate, the manager confessed to me that he had no solution for the rearing of this magnificent bird, either in pens or in the natural beautiful wilds of the preserve.

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Many people have an erroneous idea of the type of sport at such a club, considering it rather slow and tame. But it is a fact that wild game within an enclosure, when it is hunted, develops an especial wildness. Many a good hunter returns from a visit to Woodmont empty-handed; and a lot of ineffective powder is burned there. So generous in size is the preserve that a man can get lost in it without much trouble; and a deer or a turkey that has a range of five thousand acres is fairly safe from a hunter.

The ability to raise wild game in such quantities as to supply ample sport for sixty club members, and perhaps twice as many guests, over a period of a six weeks' hunting season is a rare and valuable gift; and this gift Henry Bridges has to a remarkable degree. But his position calls for the exercise of more talents than that one. I recall seeing a letter from Grover Cleveland to the manager of a hunting club in the South in which the President said, "I see that you can not only manage the club but the members as well."

Easy, courteous, but most decisive, Bridges' word is law at the Woodmont. Such an organization needs a dictator and this club has one. A sportsman, a gentleman, a diplomat, having behind him the deeply influential background of a truly noble achievement; having also the authority and power that come fairly to one who has spent his life in unselfishly supplying sport for others, Bridges, now in middle life, is as ruddy and as active as a boy, and even more enthusiastic about his unique labors than when he assumed them more than a quarter of a century ago.

HOW NATURE SCATTERS AND STORES HER SEEDS

(Continued from page 533)

picking something from the surface of the snow amid some bushes. On closer observation he found that they were feeding on the fine seeds of the "panicked andromeda." The sparrows would fly up and alight on one of the patches of hard berries, then give the berries a vigorous shaking, sending down a shower of seeds to the snow beneath. Frequently when deep snows have covered up the ordinary food of many birds, a high wind will scatter the seeds of pines, hemlocks, birches and alders far and wide over the surface of the snow for them to eat.

The length of life shown by various seeds is interesting. Some must sprout the following summer, or they die. A few, as those of the elm, willow, and poplar trees, must sprout and start growing the same summer they are formed. Most seeds will survive for one, two or three years, and still grow. Tests have shown that certain seeds will grow after being kept in a dry place for more than fifty years. The seeds of Indian lotus are reported to have sprouted when more than one hundred years old, but accounts of seeds that grew after being taken from Egyptian tombs thousands of years old are probably false.

It would be hard to find a living thing which gives less sign of life than a dry seed. Yet it has only to be given the right conditions and it will show signs of life and produce a new plant like its parents, for the seed is Nature's provision for a new generation.

WHO'S WHO

Among the Authors in This Issue

HENRY S. GRAVES (*A Dangerous Proposal*) is President of the American Forestry Association and Dean of the Yale Forest School. From 1910 to 1920 he was Chief Forester of the United States.



Henry S. Graves

DAREL MCCKEY (*The Health of John Peavey*) is well known to the readers of AMERICAN FORESTS. He is a young writer who lives in Washington, D. C.

C. FRANK BROCKMAN (*Receding Glaciers*) is Park Naturalist of Mt. Rainier National Park, Longmire, Washington. He was born in Cincinnati, but went West when a young boy.

WILSON COMPTON (*A Forestry Excursion Into Central Europe*) is Secretary and Manager of the National Lumber Manufacturers' Association, located in Washington, D. C. A lawyer and distinguished economist, he is recognized as one of the most thoroughly informed and practical authorities on the problems underlying national resource conservation.



Wilson Compton

ARCHIBALD RUTLEDGE (*Bridges of the Woodmont*) for many years has been distinguished for his charming portrayals of wildlife and for his stories of the "low country" along the Atlantic Coast. This time he writes in a slightly different vein. Mr. Rutledge, a native of South Carolina, lives at Mercersburg, Pennsylvania.

CHARLES NEWTON ELLIOTT (*Cottontail*) is District Forester for the Georgia Forest Service, with headquarters at Atlanta. A frequent contributor to AMERICAN FORESTS, he gives us in "Cottontail" an interesting picture of the lowly rabbit.



C. N. Elliott

KENNETH FULLER LEE (*Exploring in a Heron Colony*) lives at Winthrop, Maine. At present he is editing "Outdoor Maine," a weekly column in a leading newspaper in his State.

NANNIE C. DINWIDDIE (*Woods*), although originally from Virginia, has lived in Washington, D. C., for the past few years.

BLANCHARD KENNEDY (*The Forester*) wrote this delightful poem while enlisted in Company 474 of the C.C.C.

JOHN HARVEY FURBAY (*Field and Forest for Boys and Girls*) is Director of Nature Education at the College of Emporia, Kansas.

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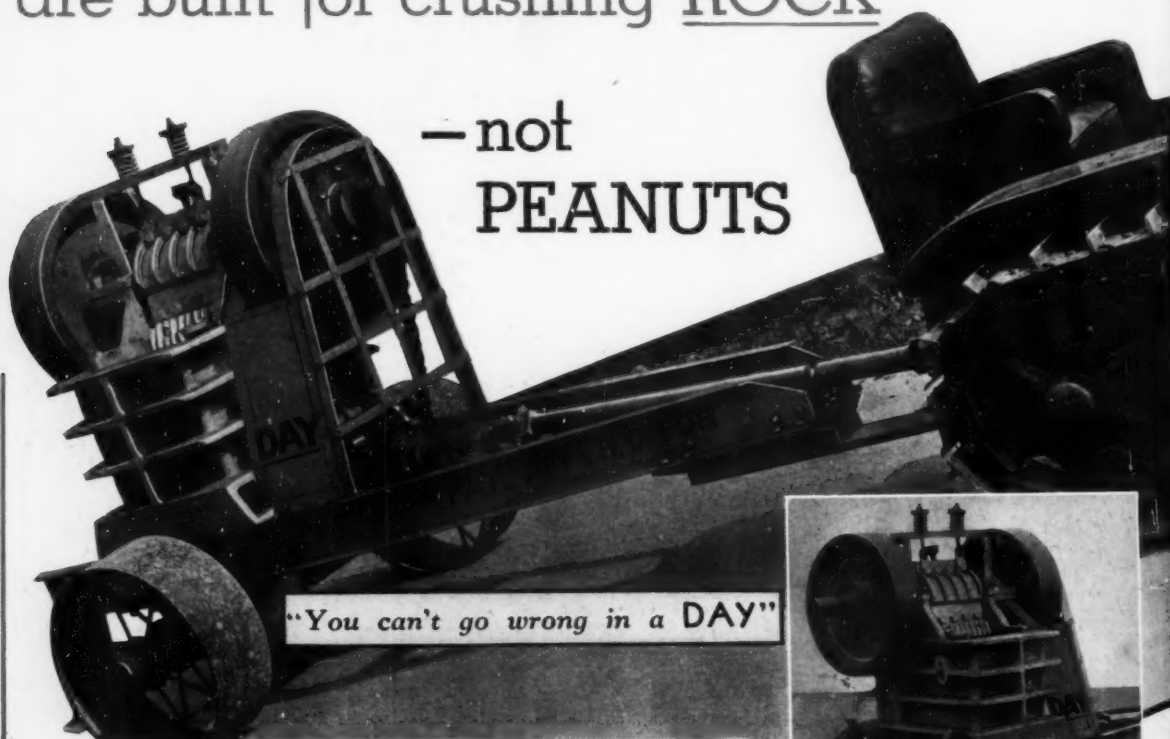
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—not
PEANUTS



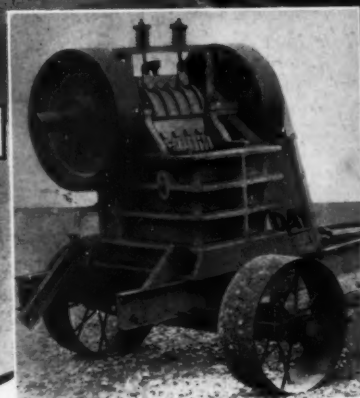
"You can't go wrong in a DAY"

- That is the reason our engineers designed every part of the Day Crusher oversize and all of Electric Steel--
- It is the reason the weight of the Day Crusher is much greater than ordinary crushers built to sell on price--
- It is the reason Day Crushers are giving such long satisfactory service--
- And, it is one reason why the United States Government has put over 30 Day Crushers to work during the past year--more than all other makes of portable crushers combined--in building roads, trails, camps, etc.

Crushing rock day in and day out is a brutal job for the huge stationary crusher...but it is a super-brutal job for the portable crusher. The DAY All Steel Jaw Crusher is the Original Traveling Crusher, and was designed especially for a long life of crushing ROCK--not PEANUTS. Where light weight crushers have failed, the DAY is taking their place; building and maintaining roads and trails at minimum cost, yet putting more men to work. Write or wire us for the complete story. Upon request, names and addresses of Governmental users will be promptly furnished you.

A FEW REASONS WHY THE DAY IS SUPERIOR TO ORDINARY CRUSHERS... Safety Side Feed; Extremely Short Turning Radius; Simplicity of Construction, no complicated parts; Saves Hauling Material; Ample

Power from the Trac-Type-Tractor; Chain Drive, no belt slippage; Quick adjustment for Coarse or Fine Material; Shipped Assembled, and ready for crushing in Two Minutes.



- The DAY Crusher may be attached or detached in two minutes to any Trac-Type Tractor having a A. S. A. E. rear power Take-off.



DAY PULVERIZER CO. Inc. Knoxville, Tenn.

